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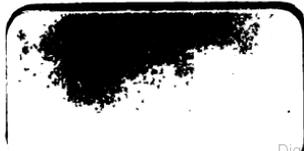
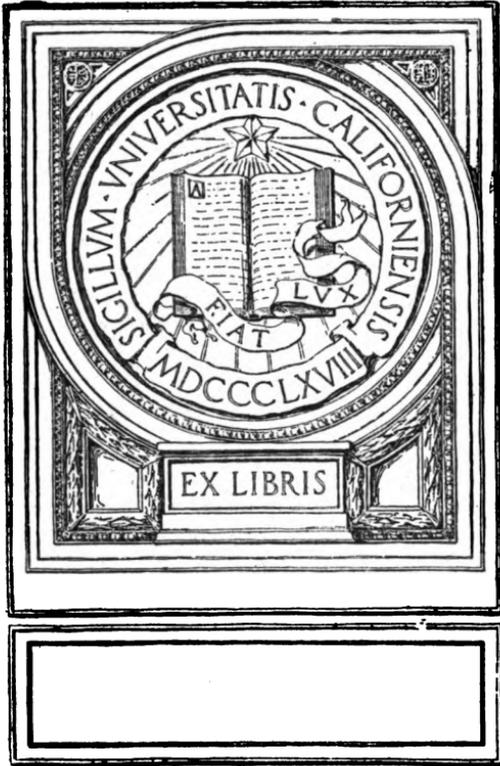
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PROCEEDINGS

OF THE

ESSEX INSTITUTE.

VOLUME III.

1860 to 1863.

*Library of
Congress*

**SALEM:
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1864.**

PROCEEDINGS
OF THE
ESSEX INSTITUTE.

Wednesday, May 9, 1860.

Annual Meeting this day at 3 o'clock, P.M., Vice President Rev. J. L. Russell in the chair.

Records of preceding annual meeting were read.

Donations, since the meeting of the 26th ult. were announced :

To the Library—from Thomas Pinnoek ; Jonathan Perley Jr. ; Philadelphia Academy of Natural Science ; Charles B. Richardson of New York ; Theron Metcalf of Boston ; James M. Caller ; Joseph Winn ; Hickling, Swan & Brewer of Boston ; N. J. Lord ; William Mack ; Mrs. O. Parsons ; Ezekiel Roberts ; Mrs. J. F. Andrew ; J. L. Sibley of Cambridge ; Essex Agricultural Society ; Charles W. Upham ; Henry Wheatland.

To the Cabinets—from R. H. Wheatland ; C. H. Norris ; Emery S. Johnson ; Mrs. J. F. Andrew ; Joshua Cleaves ; Jason Wilkins.

Letters were received from Alpheus Crosby, Cor. Sec'y of
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Essex County Teachers' Association; Trustees of Public Library of Boston; E. Emmerton; A. W. Dodge, Sec'y of Essex Agricultural Society.

The Report of the Secretary was read and accepted.

The Report of the Treasurer was read and referred to the Finance Committee.

The Reports of the several Curators were read and accepted.

These Reports present a careful review of the doings of the Institute during the year. Though no striking event has occurred, yet the increase of the Library, the addition of specimens to the Cabinets and the general interest of the public to promote the objects of our organization, indicate a gradual and healthy growth.

A brief synopsis is herewith appended.

Since the last annual gathering nine of our members have deceased—a larger number has occurred than that of any previous year; no distinction has been made in respect to age—the young just entering upon the active duties of life, those in middle age, and those who, after many years of usefulness, have at length been gathered to their fathers.

1st—Rev. GARDNER BRAMAN PERRY, D.D., the venerable pastor of Groveland. He was one of the first Vice Presidents of the Essex County Natural History Society, and, in the early organization of the Society, took a lively and deep interest in its success. It was, at that time, a day of small things, and he labored much to excite an interest in the study of the natural sciences and its kindred pursuits, agriculture and horticulture. All institutions, promotive of these objects, received always his cordial aid and support.

He was born at Norton in this State, 9th August, 1783, and

was the son of Nathan and Phebe (Braman) Perry. In 1800 he became a member of Brown University; at the end of the second year went to Union College, where he graduated in 1804, and where he received the degree of D.D. in 1848. After teaching for some years, he was invited to settle over the church in East Bradford, now Groveland, and was ordained 28th Sept. 1814, and continued his pastoral relation to the church until his decease, which took place on the 2d of December, 1859. He married 1stly, 22d May, 1816, Maria P. Chamberlain of Exeter N.H., 2dly Eunice Tuttle of Acton, July 20, 1819, 3dly Sarah Brown of Graf-ton, who survives him.

2. REV. DAVID TENNEY KIMBALL of Ipswich, who delivered a discourse occasioned by the death of Mr. Perry in Groveland on the 25th Dec. 1859, and who speaks well of him in his various relations as a Christian Minister, pastor, friend, &c.; was within a few weeks afterwards called to render the final account of his stewardship, having served in the ministry of the church in Ipswich for more than half a century. His connexion with the Institute was that of an honorary member, in virtue of his relation to the Essex Historical Society. He was born at Bradford, Mass., Nov. 23, 1782, and was the son of Daniel and Elizabeth (Tenney) Kimball of that place. At the age of seventeen he entered Harvard College and graduated in 1803. He was ordained at Ipswich 8th October 1806, and continued his relation to that church and society until his decease, which took place on Friday, 3d Feb. 1860, laboring with great diligence and faithfulness. He was a man of great modesty and humility and one whose memory will long be cherished with affection and respect. He married, Oct. 20, 1807 Dolly Varnum Coburn, daughter of Capt. Peter and Elizabeth Coburn, of Dracut, Mass. She survives him.

3. JOHN GILLISON WATERS, son of Robert and Lydia Waters, was born in Salem, 11th April, 1796. For many

years he was in the Zanzibar trade, and was one of the first to engage in it after it had been thrown open by treaty with the Sultan of Muscat, under the direction of President Jackson. He retired in 1842, and has since resided in Salem. He was, at an early age, interested in the religious movements of the times and was a "lover of good men," always ready to assist in undertakings of this character with a liberal and free hand.

4. MISS ELIZABETH AMORY; daughter of Jonathan and Mchitable Amory, of Boston. For several years she has resided in Salem and taken a great interest in the doings of the Institute. She died at Salem, 6th July 1859, aged 53.

5. JONATHAN LOVETT WHIPPLE; son of Jonathan and Mary (Cloutman) Whipple, was born at Salem April 19, 1824. He was educated at our schools and early indicated a great taste for mechanical pursuits. For several years past he has been engaged in the cleansing of Gum Copal, in connection with his brothers. He was a man of integrity, firm in purpose, warm-hearted and zealous in every good work, and highly esteemed among his associates for his amiability and gentleness of manners. He died on the 4th of the present month, (May 1860.) He married September 18, 1855, Emma Noyes Dodge.

6. CHARLES WENTWORTH UPHAM, Jr., eldest son of Hon. Charles W. and Sarah (Holmes) Upham, was born at Salem 29th August, 1830. After passing through our several schools he entered Harvard College and graduated in 1852. He pursued the usual course at the Law School in Cambridge; and spent the years 1855 and 1856 in travelling in Europe. For the last two or three years he has resided in Buffalo, N. Y., engaged in the practice of his profession, where he was highly esteemed and gained the respect and love of many friends by his pleasing manners, bright and cheerful temperament and sprightly conversational powers.

To the graceful qualities of mind were added an accuracy and promptitude for business which could not fail to have met with success.

7. **GEORGE FRANKLIN DODGE**; son of George and Orrana (Hale) Dodge, was born in Salem, 9th May 1829, and died in the place of his birth, 16th March 1850. He was educated in the public schools of this city, commenced life as a clerk, and step by step was advanced to posts of responsibility and trust; in all of which he possessed the unlimited confidence and respect of his employers. His modesty and retiring disposition prevented him from being widely known, but those who had the pleasure of his friendship will duly appreciate his conscientiousness, integrity, obliging disposition, and gentle and refined manners.

8. **GEORGE WASHINGTON RIDER**; son of Joseph and Abigail (Janes) Rider, was born at Salem, 6th March 1838. A graduate of the English High School, a good scholar and gave promise of usefulness in life. He died 24th December 1859.

9. **JOSEPH ALONZO POTTER**, son of Joseph and Sarah (Crowninshield) Potter, was born at Salem, 29th Dec. 1837, and died July 30, 1859. He was an invalid from early youth, and consequently did not engage much in the active duties of boyhood, but was induced to lead the life of a retired student. In 1856 he first played a game of chess, the study of which became his delight and hobby. In January, 1857, he received the Chess Monthly, when he dates his chess life; and from that time to his death he was absorbed in its history and science, whenever health would permit. He composed problems, corresponded extensively with chess scholars—edited for eight months a chess column in the American Union, and during his chess life wrote or received over 1000 letters on the subject and left over 100 original chess problems.

Five numbers of the Historical Collections were issued during the year 1859, and two numbers of the volume for 1860. They have been favorably received and the success thus far warrants a continuance.

Six Field Meetings have been held, viz: at Wenham, Middleton, Saugus, North Andover, Groveland, and Beverly. They were well attended and awakened considerable interest in the places visited;—also eight evening meetings during the months of December, January, February, March and April;—the quarterly, and ordinary meetings occasionally, for the transaction of the current business.

The following additions during the year may be specified.

TO THE LIBRARY. Many of the additions are valuable, and, with few exceptions, donations from the General and State Governments, societies or individuals.

The additions from all sources are as follows:—

Folios, - - - - -	6
Quartos, - - - - -	21
Newspapers bound, - - - -	46
Octavos or lesser-fold - - -	395
	— 468
Serials, - - - - -	1500
Pamphlets, - - - - -	1080
	— 2580
	— 3048

Also, several piles of newspapers more or less perfect.

The above have been contributed by one hundred and fifty-six individuals, societies, &c.

TO THE DEPARTMENT OF NATURAL HISTORY. *Mammals.* Valuable additions, during the year, have been received. The contributions of Dr. H. Neisler of Georgia, consisted

of a goodly collection of the small quadrupeds of Georgia—and that of James Bartlett of Wenham, those in this vicinity. W. A. Lander presented a specimen of *Otisorex platyrhinus*, one of the smallest of our quadrupeds, and seldom noticed.

Ornithology. Twenty contributors have made large additions. Progress has been made in the arrangement of the collection; the specimens are in good condition. The attention of the members and friends is called to that of the nest and eggs—being deficient in several of the common species.

Herpetology. The curator reports a very gratifying increase from thirty-six contributors, and that the collection in regard to preservation is in the best possible condition; many of the wants in the species of the county have been, through the kindness of friends, supplied, though we are far from having all that is required to give us a complete history of the reptiles of the county.

Ichthyology. The additions have been unprecedentedly large and valuable; the collection of American fishes having been largely augmented by donations and exchanges, while by means of the cans despatched to different foreign countries through the kindness of our merchants and ship-owners, the Foreign specimens have nearly doubled. We are greatly indebted to those gentlemen who have kindly consented to take or send them and hope during the year to obtain still other opportunities. The specimens have all been alcoholic with the exception of a sturgeon, *Acipenser oxyrinchus*, weighing about 150 pounds, presented by C. K. Stevens of Lawrence. The number of donors, thirty-one.

Articulatæ and Radiatæ. Thirty-six contributors have made valuable additions—these are principally, however, confined to the crustacea, and the radiata—this is owing, in a great measure, to the system of sending cans and alcohol through the kindness of our merchants and seamen. The collection is reported to be in good condition.

Mollusca. The principal contribution was from S. H. Phillips, who presented a very extensive and valuable collection of shells; they occupy several drawers in the cabinet awaiting for more extensive accommodations for a suitable arrangement.

Comparative Anatomy. Contributors; G. Upton, J. B. King, S. Carlen, &c. Skeletons of several species of toads and frogs, have been placed in the cabinets.

Mineralogy and Geology. Donors; Edwin Upton, E. A. Upton, B. E. Shaw, Miss Emily Gardner, B. W. Stone, G. Upton, W. Briggs, B. F. Mudge, C. F. Williams, O. C. Marsh, W. Prescott.

THE HISTORICAL DEPARTMENT. The curators, in their report, congratulates the society on the increased interest and on the additions during the past year. Articles of every description, tending to illustrate the dress, customs, habits, manner of living &c., of the different parts of the world—particularly of both the East and West Coasts of Africa, India, China, the Sandwich and Fejee Islands, have been received from thirty-nine contributors. This collection Mr. H. F. Shepard is now arranging in systematic manner in groups according to their country, and as far as possible in separate cases,—a catalogue of this department is nearly completed.

DEPARTMENT OF HORTICULTURE. The Annual Exhibition of Fruits and Flowers took place on Wednesday, Thursday and Friday, September 18, 19, and 20, 1849. The weather was very unpropitious—rainy and cloudy during nearly the whole time of the continuance of the Show. Owing to previous storms our gardens were much injured, fruit blown from the trees, &c. However, under these discouraging circumstances the exhibition was much more satisfactory than was anticipated, and it was truly gratifying to witness the general interest in the culture of fruits.

The following officers were elected for the year ensuing, and until others shall be chosen in their stead, viz :

President—DANIEL A. WHITE.

Vice Presidents—John L. Russell, James Upton, H. M. Brooks.

Secretary and Treasurer—Henry Wheatland.

Librarian—John H. Stone.

Cabinet Keeper—Richard H. Wheatland.

Finance Committee—John C. Lee, R. S. Rogers, George D. Phippen, Henry M. Brooks, James Chamberlain.

Publication Committee—John L. Russell, Henry Wheatland, George D. Phippen, Ira J. Patch, John H. Stone, George M. Whipple.

Library Committee—Daniel A. White, David Roberts, S. P. Fowler.

Curators of Natural History—In Botany—John L. Russell ; Mammalogy—F. Winsor ; Ornithology—F. W. Putnam ; Herpetology and Ichthyology—R. H. Wheatland ; Articulata and Radiata—C. Cooke ; Mollusca and Paleontology—H. F. King ; Comparative Anatomy—Henry Wheatland ; Geology—H. F. Shepard ; Mineralogy—D. M. Balch,

Curators of History—Ethnology—Wm. S. Messervy, M. A. Stickney, F. H. Lee ; Manuscripts—Henry M. Brooks, Ira J. Patch, L. R. Stone, G. L. Streeter, S. B. Buttrick ; Fine Arts—F. Peabody, J. G. Waters.

Curators of Horticulture—Fruits and Vegetables—James Upton, John M. Ives, J. F. Allen, R. S. Rogers, George B. Loring, C. F. Putnam ; Flowers—F. Putnam, W. Mack, C. H. Norris ; Gardens—J. L. Russell, J. S. Cabot, J. Bertram, B. A. West.

A Committee was appointed, consisting of Messrs. C. M. Tracy of Lynn, S. P. Fowler of Danvers, John M. Ives of

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Salem, Benj. C. Putnam of Wenham, R. H. Wheatland and C. H. Norris of Salem, and A. W. Dodge of Hamilton, to arrange for the Field Meetings the coming season.

A Committee was also appointed to arrange for Lectures the ensuing winter, if expedient, also for the Evening Meetings. Messrs. J. L. Russell, James Kimball, F. Peabody, G. D. Phippen, and C. M. Tracy were appointed on said Committee.

The consideration of the report of the Committee on the authenticity of the tradition, "that the old building on the estate of David Nichols, rear of Boston street, was built from the frame of the first church ever erected in Salem", presented at the meeting of the 26th ult., was resumed and after some discussion, the following vote was adopted.

Voted,—That the Committee, who have had charge of this matter, and who have so faithfully and carefully examined all the points of interest bearing on this subject, and have prepared this able and interesting report, be further instructed to take such action in relation thereto as they may deem advisable ;—*Provided*, that the funds for this purpose be obtained by private subscription, or by such appropriation from the general income of the Institute, as the Finance Committee may direct.

Voted to adjourn.

Friday, June 8, 1860.

FIELD MEETING AT TOPSFIELD.—The first of the series of Field Meetings, held by the Institute, this season, took place as above. The appointment had been made for Wednesday, the 6th inst., but unfavorable weather compelled a postponement. The early train from Salem took up a party of liberal dimensions, whose easy, "open order" stroll over the

village green gave it a look of as great activity, perhaps, as it has shown since the days of May Trainings; unless in some excepted cases, when the "Cattle Show" may have wakened the quiet spot to equal, and perhaps more enduring animation.

Topsfield may stand as the central town of Essex county. It is located on land nearly as high as any, and for irregularity of boundary line, may fairly challenge any of the neighboring townships. But these peculiarities are of small moment, compared with that, which gives Topsfield the praise of rearing and preparing more schoolmasters than any other place, probably, in Eastern Massachusetts. Its small, square, "hip-roofed" Academy, occupying a pleasant little rounded knoll, just at one side of the village, stands as the monument of its own past usefulness, and an equal proof of the continuance of that usefulness in the present. A greater pride should this little structure be to Topsfield, than the Arch of Titus or the Temple of Minerva, if either occupied that little sunny knoll instead of it.

A dispersion of the company into parties soon took place; one betaking themselves to the enjoyment of the fine views to be observed from the summits of "Great Hill," and "Town Hill", over whose steep acclivities the unvarying Newburyport Turnpike forces its toilsome and almost dangerous way; and another going into an examination of the somewhat noted "Treadwell Farm", not long since bequeathed to the Essex Agricultural Society by its former proprietor. This party was well entertained by the keeper, Mr. Brown, under whose care several interesting experiments are progressing, in regard to the comparative efficacy of different manures. Here the Pasture Oak exists in fine condition, but the visitors noticed with regret the recent felling of some of these trees, and the thought naturally arose, that little was

done by cultivators to replace such losses, beautiful and valuable as this Oak is known to be. Attention was, likewise, directed to two unusually large Locust trees, which had remarkably escaped the borer, till, in the case of one, a circumference of ten feet had been attained, four feet above the ground.

A third division made a rather longer jaunt toward the north, through fields and meadows and along the devious country ways, at one time very near the line of Boxford, and again, emerging on the bank of that very beautiful sheet of water called Pritchard's Pond, the greater part of which is included in Ipswich. This pond bears much resemblance to that in Middleton; but is less encompassed with woods; and having steep and elevated banks, is not, in the part visited, certainly, as easy of access as the other.

The various detachments returned in the neighborhood of noon and a general rendezvous was made at "Union Hall," in the basement of the Methodist Church, the use of which had been kindly tendered for the occasion. Not long afterward, the meeting was called to order by Vice President John L. Russell, and after the reading of the record the following donations were announced, received since the 9th ult.

To the Library—from Jonathan Perley; Peabody Institute, South Danvers; James S. Bryant, of Hartford, Ct.; George B. Loring; Trustees of the New York State Library; Middlesex Mechanic Association, Lowell; Canadian Institute at Toronto, C. W.; Henry F. Shepard; John B. Alley, M. C.; John W. Archer, of Brighton, Ill.; Philadelphia Academy of Natural Science; Boston Society of Natural History; J. I. Bowditch, of Boston; San Francisco Mercantile Library Association; C. Benj. Richardson, of New York; B. W. Stone; John C. Holmes, of Lansing, Mich.

To the Cabinets—from E. Kirk Johnson of Nahant ; S. P. Fowler of Danvers ; Robert Brookhouse ; Jason Wilkins ; James R. Phelps ; H. F. Shepard ; W. J. Chever ; Miss M. G. Wheatland ; R. S. Rogers ; John Bertram ; Stephen Upton ; George H. Hovey ; Miss Sarah Kimball ;—Frost of Marblehead ; R. Wheatland ; Charles Davis of Beverly ; John Washington ; William Shackelford ; Wm. Lefavor ; Miss H. M. Jacobs of South Danvers ; John F. Ropes ; James D. McMurphy ; C. Cooke ; W. H. Hall ; G. F. Chever ; R. Brookhouse, jr. ; Henry E. Jenks ; R. B. Forbes of Boston ; George Harrington ; James Upton ; R. H. Wheatland.

Letters were read from N. S. Shaler of Newport, Ky. ; A. E. Verrill of Norway Me. ; Connecticut Historical Society ; Trustees of Newburyport Public Library ; Maine Historical Society ; John C. Holmes of Lansing Mich. ; State Historical Society of Wisconsin ; C. M. Tracy of Lynn ; R. Phillips of Topsfield ; William Merritt of Salem ; Smithsonian Institution ; W. B. Trask of Boston ; J. Colburn of Boston ; M. A. Stickney ; E. O. Proctor of South Danvers ; Morris Spofford of Groveland.

The Chair introduced the exercises by some remarks on the history and purposes of the Institute, calculated to awaken an interest in the Institution in those who might thus learn its nature and objects.

John M. Ives of Salem, observed that this was not the first visit of this society to the town of Topsfield. Indeed, the first public meeting of the Essex County Natural History Society, one of the parents of the Essex Institute, was held here, at the old hotel, in 1834 ; and the first Field Meeting under the present organization was also held here, in the Academy Building, some four years ago. But he had fresh proof to-day that all our own territory was not yet com-

pletely known, nor a perfect acquaintance had with its productions ; for he had to-day found the Painted Cup (*Castilleia coccinea*) growing profusely in a neighboring meadow, when he did not suspect its existence in the town. This is a beautiful plant, making a notable feature in the landscape wherever it flourishes.

Dr. B. H. Wheatland of Salem, mentioned that he had been tolerably successful in securing specimens to-day, having found four species of fishes, four of frogs, three of turtles, and one of snakes ; and he proceeded to offer remarks upon their structure, growth, and habits. The animals of our own region are not less interesting than the rarest foreign species, though every country and climate has its peculiar grade and style of animal life. He proceeded to illustrate the correspondence between animals and the situations they are formed to inhabit, by some specimens of the curious "Blind Fish," so often heard of, from the Mammoth Cave of Kentucky, and also a fresh water crab (*Astacus fluviatilis*) from the same locality. These specimens were brought from thence by Mr. B. C. Putnam of Wenham.

The Chair gave some descriptive observations on a specimen of the "seventeen-year-locust" handed in by Mr. Felt. These are said to do but little harm singly, but the immense multitudes in which they often appear, commit great devastation wherever their track happens to be. In the timely destruction of such pests, lies the usefulness, too little admitted, of such birds as crows and robins. The cultivator can see that these attack his fruit, and he therefore judges them his enemies, but he does not see, and rarely stops to inquire, what incalculably greater good they do in their vigilant pursuit of these insect destroyers, more than repaying the loss of a few handfuls of berries in a season.

Samuel Todd of Topsfield, invited attention to the gravel pits in the vicinity. The general formation in this place is sandy, but in the midst of it appear three knolls of gravel, evidently originating somewhere else, and probably brought from the far north by drift currents. Dr. Kane tells us of red gravel covering the polar ice for miles, and it would seem that such agencies are even yet at work breaking down the solid rocks and scattering the debris southward.

The Chair pursued the subject in some remarks, regretting the absence of our Geological member, B. F. Mudge, of Lynn, lately removed to the West.

C. M. Tracy of Lynn, summed up the results of the botanical rambles of the day, having found the following, among many more common plants:

Bulbous Arethusa, (*Arethusa bulbosa*.)

Purple Avens, (*Geum rivale*.)

Painted Cup. (*Castilleja coccinea*.)

The two first from a meadow north of the village, and the last from one about half a mile to the east. It makes a gorgeous appearance there, coloring the herbage, as it were, for many square rods. This is a peculiar variety having the bracts a deep orange color, instead of the fine scarlet commonly seen. If this plant could be cultivated, it would be a choice thing for the garden, but it is thought to be parasitic by the roots, like the Gentians, which would render its growth impossible, except in spots of its own choosing.

Mr. Osgood Perley exhibited and presented to the Cabinet one of the interesting concretions taken from the stomach of the Ox. It consisted, evidently, of hair licked from the animal's coat and swallowed, after which, by the motion of the stomach, it became "felted" and hardened together into a solid ball.

The Committee on Field Meetings announced that the next would be held at Groveland, Wednesday, June 27, if favorable weather.

The thanks of the Institute were then voted to the proprietors of the Methodist Church for their kindness in admitting us to their commodious hall; also to Messrs. Phillips, Adams, Merriam, Holmes, Peabody, Leach and others, for their polite and gratifying attentions to the members this day. Adjourned.

There were on exhibition outside the Hall, two beautiful living specimens of ornithology; one of the White Headed Eagle belonging to Eleazer Lake of Topsfield, captured in December, 1858; the other of the large White Owl, taken in December last, and owned by George Killam of East Boxford. This did not appear to be the Snowy Owl, but rather an albino of some other species. Both were healthy and attracted much attention.

Wednesday, June 27, 1860.

FIELD MEETING AT GROVELAND.—The Institute visited this place in September last, and most of the local features of interest may be found noticed in the account of that occasion. To-day the rendezvous was at the same spot as before, viz: Balch's Grove, whose owner, William Balch, is still living, having reached the age of ninety-three, with faculties almost unimpaired. On the walk from the station to this place the party were led to notice a hill whose loose soil, now overgrown with rye, anciently served for an Indian burial ground. The bones of the red men are not yet wholly wanting on the spot, being now and then disturbed by the unthinking ploughman; and more than once, it is said, the frost has gradually lifted the remains till the skele-

ton emerged from its resting place in the same sitting posture in which it was first interred.

There was no lack of pleasant entertainment for the explorers to-day, who spread about in various directions according to the demands of their differing fancies. Some visited the huge bowlders on the land of Mr. Abel Stickney, heretofore mentioned ; others examined the river-banks and their productions, as well as those of the ancient stream itself. A few took ferriage across to the flourishing town of Haverhill, which boasts so much of historic interest and modern enterprise, and there passed the forenoon in researches into the matters pertaining to the place, both new and old.

The afternoon meeting took place at the Independent Church, at 3, P.M. The Chair was occupied by Vice-President Russell, who favored the meeting with remarks sufficiently extended to atone for the want felt by reason of the absence of other speakers.

The following donations were announced, as received since the meeting at Topsfield.

To the Library—from Ohio Mechanics' Institute, Cincinnati ; N. J. Lord ; Alfred Poor of Haverhill ; Wm. Stearns ; H. M. Brooks ; N. Y. Mercantile Library Association ; Chicago Historical Society ; Samuel Green of Boston ; S. C. Jackson of Andover ; E. Hervey Quimby ; Philadelphia Academy of Natural Science ; N. Y. State Library ; J. L. Russell ; Jeremiah Colburn of Boston ; Mrs. N. Ingersoll ; G. F. Read ; Geo. Andrews ; Congregational Library Association.

To the Cabinets—from Arthur M. Merriam, Topsfield ; Osgood Perley of Topsfield ; R. H. Wheatland ; B. F. Browne ; S. Lewis jr. ; Miss M. G. Wheatland ; C. H. Nor-

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ris ; Geo. Dodge of Wenham ; Jason Wilkins ; Caleb Cooke ; Mrs. W. B. Johnson of Cohasset ; N. B. Baker of Clinton, Iowa.

Letters were read from Trustees of Newburyport Public Library ; Smithsonian Institution ; Trustees of Boston Public Library ; Massachusetts Historical Society ; M. Spofford of Groveland ; W. Merritt ; A. Ordway of Boston ; M. Miles of Flint, Mich.

The Chair proceeded to give a pleasant account of his own rambles during the day, and the various objects of interest which had become known to him thereby. The study of botany, always a favorite with him, was far from being without value to others—to all, even the scientific and somewhat technical forms of it. No farmer should be destitute of this knowledge. "Here" said he, "is a plant from New Zealand, a sort of Spinach, raised by one who bought the seed under the supposition that it was parsnip seed. A little *accurate* knowledge of botany would have certainly prevented a blunder so very awkward and troublesome."

He further exhibited various other plants, among them the *Tephrosia*, known commonly as "Catgut," for its long and tough fibrous roots, or sometimes as "Hen and Chickens." It is a pleasant looking denizen of the damp boggy lands, and belongs to the great Pea family.

The Tulip Tree (*Liriodendron*) had been brought up from Danvers by Dr. Osgood. This fine tree is native as far north as the interior of Massachusetts, penetrating further in this direction than almost any other of the Magnolia tribe. Its beauty is not to be questioned, and its utility is scarcely less ; its wood being soft and light, and valued by wheelwrights and joiners, who use great quantities for paneling, under the name of Whitewood. Many specimens of our beautiful *Kalmia* or Mountain Laurel, were also shown ; and proceeding from this, he remarked that the beauty of

our own plants was far superior, in general, to that of the European. Neither could Europe vie with us for variety and diversity of vegetation. The whole number of species of native trees, of all kinds, now to be found in Great Britain, was not as great as the number of oaks alone described as belonging to the United States.

Jacob W. Reed of Groveland, author of a genealogical history of the Reed family, gave a synopsis of the facts and speculations to which he has given much attention, as to the topographical history of the Merrimac River. The abrupt angle by which the stream turns, a little above Lowell, from its nearly southerly course, to one almost northeast, has occasioned much thought among those interested in such changes. "Now the fact is," said he, "that from this bend a valley extends southward, in very nearly the primary direction of the river, and terminates in Boston harbor. Had the river been stopped back by obstructions across its present bed at Lowell, it would have continued on through this valley and flowed into Boston harbor instead of where it now does." He thought this was anciently the case, and thus the Merrimac has lent its aid in the formation of that harbor. But this natural dam having once given way, the waters turned northeasterly until some other and similar stoppage took place, sending the current southward again. This seems to have happened several times and in one instance the stream had its outlet in the harbor at Salem. At a point near "Rocks Bridge" the latest obstacle seems to have existed. The Indians formerly had a tradition, that the mouth of the Merrimac was near that of Parker River, thus leaving Newbury on the northern side.

Mr. R. further gave some interesting statements as to the Indian remains found at "Ridge Hill" before spoken of.

Rev. Mr. Willson of Salem, offered some brief remarks on the value of knowledge, even that little which has been styled a dangerous thing.

On motion, the thanks of the Institute were then presented to the proprietors of the Independent Church for the use of their house, also to Messrs. Spofford, Parker, Savory, Reed and others citizens of the town for their kind attentions during the day, and the meeting then adjourned.

Monday, July 16, 1862.

FIELD MEETING AT WEST GLOUCESTER.—This place became the locality of the third of these pleasant occasions this season. It is not a very large or populous village, and a slight survey is enough to show that not a large amount of travel passes this way, at least to make any stay in this vicinity. Yet it is certainly not for want of pleasant scenery, and local matters attractive enough to the eye and heart, but not, perhaps, to the money-seeking enterprise of the present day.

The town of Gloucester may rank as one of our oldest daughters of Essex, having been incorporated originally in 1639, three years before it received its present name. The West Parish dates back in its corporate existence, to 1716, when Rev. Samuel Thompson was settled as its minister; but the old meeting-house, which was only taken down within some ten years, had the date of 1713 on its sounding board, and the ornamental carving, with the year upon it, is yet preserved in a beer store in the village. The meeting-house was about forty feet square, and stood about two miles from where the Institute assembled, on a spot which the forest has now overgrown.

A company of liberal magnitude attended the meeting

to-day, though, as usual, not all coming at the same time, or by one route. One division had started early, and gone by a more extended road to explore the ever-famous Magnolia swamp, not far away. This spot always figures prominently in the attentions of the members, when anywhere in its neighborhood, but not every one, who visits it, brings away full satisfaction or dry feet. The magnolia is certainly there, genuine and lovely, but the plants are grown scrubby through rude and frequent breakage, and the blossoms never abundant, are made rarer yet by unscrupulous rangers, who bid fair to destroy the bushes in their eagerness for a two-penny traffic in the half-opened flowers. Still the Magnolia Swamp will not answer to be neglected by the botanist, for it contains many rare and beautiful plants beside that for which it is named. The Inkberry (*Prinos glaber* or *Ilex glaber*) a close relative of the Holly, revels in the bogs in profusion, its bright evergreen foliage alike cheerful in summer and winter. The White Fringed Orchis (*O. blephariglottis*) lifts its spikes of pure white flowers here and there, and the Clintonia, named after the worthy DeWitt Clinton of New York, here and there fills large spaces with its broad leaves of brightest green, and adorns them with its little golden lilies first, and blue berries afterward. The structure of this swamp appears peculiar, for very little earth or soil of any kind is to be met after leaving the margin, but instead, one level expanse, crowded and packed with Sphagnum or peat moss. This, growing continually at the surface and decaying below, preserves its condition of a soft, compact, elastic cushion, full of water, but free from mud, green as grass at the top, and furnishing an excellent foothold for all kinds of vegetation.

The morning party being thus engaged with this and other notable spots at some little distance from the rendezvous, the latter, and more thoroughly pleasure-hunting company

turned their care to other objects. Some started for the other villages of Gloucester to evoke whatever historical wonders might be slumbering about them. Still more, and in fact nearly all the residue, set off to climb the tallest eminence in the town, known as Thompson's Mountain. This eminence, noted by Babson as 255 feet high, has had its celebrity finally established by being made a signal station by the United States Coast Survey. After a warm and rather weary walk, the summit was reached, and from the stern and almost naked rock which forms it, the party looked about on a prospect of admirable diversity and extent. Immediately about the foot of the mountain lie the dense woods that occupy all the western part of the town. Beyond are seen the goodly buildings of the Harbor Parish, or Gloucester proper, toward the southeast; the more scattered ones of the old Town Parish on the east; with Annisquam (or Squam, familiarly) on the northeast, and Essex, nearly in the west; all making up a charming picture of the homes and haunts of Cape Ann, backed in the distance by Plum Island, Coffin's Beach, and the blue surges of the broad Atlantic. Far away, the eye catches in the northwest, the lofty swell of Holt's Hill in Andover, and still further, the blue and ghostly peaks that represent three more of New England's sisterhood of states, Agamenticus in Maine, Gunstock in New Hampshire, and Beaconpole in Rhode Island. These are all signal stations of the survey, and here the company found Mr. Hassler, the assistant in charge, who with his instruments, was very polite, and ready to add what he might to the pleasure of his visitors.

After the reuniting of the various divisions, and the discussion of the refreshments made doubly acceptable by the invigorating jaunt, the afternoon meeting was called to order by Vice President Russell, under the shadow of a spreading apple-tree on the grounds of a West Parish farmer.

Donations to the Library and Cabinets were announced as follows:

To the Library—from the Trustees of the New York State Library; C. B. Richardson of New York City; Boston Society of Natural History; Thomas Fettyplace of Mobile, Ala.; Zaccheus Gould of Topsfield; Henry M. Brooks; Nathaniel Paine of Worcester; George C. Chase; N. Y. Mercantile Library Association; Connecticut Historical Society; Mrs. N. D. Cole; George F. Read; R. H. Wheatland; Henry F. Shepard.

To the Cabinets—from H. M. Brooks; Thomas Fettyplace; F. H. Lee; J. C. Lee; R. S. Rogers; James Bartlett of Wenham; Joseph True; Richard H. Wheatland; Chas. H. Price; Benjamin F. Morrison of Nantucket; L. E. Evans; Chas. H. Norris; Elliot F. Smith; William Clough.

Letters were read from the Trustees of the New York State Library; Smithsonian Institution; B. F. Morrison of Nantucket; F. B. Perkins of Hartford, Conn.; Jeremiah Spofford of Groveland.

The chair, on opening the exercises, recounted some of his excursions and adventures during the day, and added a pleasant description of several species of plants.

S. P. Fowler of Danversport followed, with a further discussion of the flora of this peculiarly fertile region, fertile, at least in vegetable rarities. Mr. F. went somewhat largely into the consideration of those plants which had come under his notice in this day's rambles.

Rev. C. C. Beaman of Salem, had gleaned a few facts of interest concerning the old meeting house and had also paid a visit to the parsonage, another ancient institution of the place, on which he based some entertaining remarks. He further spoke of several notable localities in this region in-

cluding that known as Hog Island, the birthplace of the Hon. Rufus Choate.

A. B. Almon, of Salem, responded briefly to the call of the chair, alluding to the various events and circumstances of the occasion in a very agreeable manner.

Prof. A. Crosby of Salem, went into some account of the excursion to Thompson's Mountain, of the characters of that eminence and the fine view commanded by it; also, of the operations of the Coast Survey in this locality, and the explanations of the same given by Mr. Hassler.

S. P. Fowler of Danversport, followed with some remarks on the habits of our native birds, and the changes which these habits appear to be undergoing, principally in consequence of civilization, and the new state of things continually introduced by man.

John M. Ives of Salem had read some curious and interesting observations on the same subject, a few of which he recounted to the meeting.

George F. H. Markoe presented the following Catalogue of Plants, observed by him, in flower or fruit, during the excursion in the vicinity of the place of meeting.

Thalictrum cornuti, Meadow Rue.

Ranunculus bulbosus, Bulbous Crowfoot.

“ *acris*, Tall Crowfoot, Buttercups.

Aquilegia canadensis, Wild Columbine, flower and fruit.

Magnolia glauca, Small or Laurel Magnolia.

Berberis vulgaris, Com. Barberry, fl. fr.

Nymphaea odorata, Sweet-scented Water Lily.

Nuphar advena, Yellow Pond Lily.

Sarracenia purpurea, Pitcher Plant, fr.

- Chelidonium majus*, Celandine.
Papaver somniferum, Com. Poppy.
Sinapis nigra, Black Mustard.
Capsella Bursa-pastoris, Shepherd's Purse.
Sisymbrium officinale, Hedge Mustard.
Drosera rotundifolia, Round Leaved Sundew.
 " *longifolia*, Long Leaved Sundew.
Hypericum perforatum, Com. St. John's-Wort.
Silene inflata, Bladder Campion.
 " *noctiflora*, Night Flowering Catchfly.
Stellaria media, Com. Chickweed.
Cerastium vulgatum, Mouse-ear Chickweed.
Malva rotundifolia, Com. Mallow.
Tilia Europæa, European Linden.
Oxalis stricta, Yellow Wood-Sorrel.
Rhus typhina, Staghorn Sumach.
 " *glabra*, Smooth Sumach.
 " *venenata*, Poison Sumach or Dogwood.
Ceanothus Americanus, New Jersey Tea.
Trifolium arvense, Stone or Rabbit Foot Clover.
 " *pratense*, Red Clover.
 " *repens*, White Clover.
 " *procumbens*, Low Hop Clover.
Spiræa salicifolia, Com. Meadow Sweet.
 " *tomentosa*, Hardhack.
Geum album, White Avena.
Potentilla Norvegica Floribunda.
 " *Canadensis*, Com. Cinque foil.
 " *argentea*, Silvery " "
Rubus villosus, High Blackberry.
Rosa Carolina, Swamp Rose.
 " *lucida*, Dwarf Wild Rose.
 " *micrantha*, Small Fl. Sweet Briar.
Epilobium angustifolium, Great Willow Herb.

- Oenothera biennis*, Com. Evening Primrose.
Aralia nudicaulis, False Sarsaparilla, fl. fr.
Cornus Canadensis, Dwarf Cornel, fr.
Sambucus Canadensis, Com. Elder.
 " *pubens*, Red Berried Elder.
Mitchella repens, Partridge Berry.
Oldenlandia cærulea, Bluets.
Eupatorium perfoliatum, Thoroughwort.
Rudbeckia hirta, Rudbeckia.
Leucanthemum vulgare, White Weed.
Leontodon autumnale, Fall Dandelion.
Taraxacum dens-leonis, Dandelion.
Lobelia spicata, Pale Lobelia.
Gaylussacia resinosa, Black Huckleberry, fr.
Vaccinium macrocarpon, Cranberry.
 " *vacillans*, Low Blueberry, fr.
 " *corymbosum*, Swamp Blueberry, fr.
Gaultheria procumbens, Checkerberry.
Clethra alnifolia, White Alder.
Kalmia latifolia, Mountain Laurel.
 " *angustifolia*, Sheep Laurel.
Pyrola rotundifolia, Round Leav. Pyrola.
Chimaphila umbellata, Prince's Pine, Pipsissewa.
Monotropa uniflora, Indian Pipe.
Plantago major, Com. Plantain.
 " *lanceolata*.
Lysimachia stricta, Bulb-bearing Loosestrife.
 " *quadrifolia*, Four Leaved Loosestrife.
Verbascum thapsus, Com. Mullein.
Linaria Canadensis, Wild Toad Flax.
 " *vulgaris*, Toad Flax. Butter and Eggs.
Veronica scutellata, Marsh Speedwell.
Melampyrum Americanum, Cow Wheat.
Mentha Canadensis, (*M. borealis*) Wild Mint.

- Hedeoma pulegioides*, American Pennyroyal.
Nepeta cataria, Catnip.
 " *glechoma*, Ground Ivy. Gill.
Brunella vulgaris, Self Heal or Heal All.
Leonurus cardiaca, Motherwort.
Calystegia sepium, var. *repens*, Hedge Bindweed.
Solanum dulcamara, Bittersweet.
Apocynum androsæmifolium, Dogbane.
Asclepias cornuti, (*A. Syriaca*,) Milkweed.
 " *phytolaccoides*, Poke " "
Phytolacca decandra, Poke. Garget.
Polygonum persicaria, Lady's Thumb.
 " *aviculare*, Door Weed. Goose Grass.
Rumex obtusifolius, Bitter Dock.
 " *crispus*, Curled Dock.
 " *acetosella*, Field or Sheep Sorrel.
Sassafras officinale, (*Laurus Sassafras*) Sassafras.
Corylus rostrata, Beaked Hazel Nut.
Myrica gale, Sweet Gale.
 " *cerifera*, Bayberry, Wax Myrtle.
Comptonia asplenifolia, Sweet Fern.
Sagittaria variabilis var. *sagittifolia*, Arrow Head.
Pogonia ophioglossoides, Pogonia.
Calopogon pulchellus, Calopogon.
Iris versicolor, Blue Flag.
Sisyrinchium Bermudiana, Blue Eyed Grass.
Smilax rotundifolia, Com. Greenbriar.
Lilium Philadelphicum, Philadelphia Lily.
 " *Canadensis*, Wild Yellow Lily.
Polypodium vulgare, Com. Polypody.
Aspidium marginale, Shield or Wood Fern.
Polytrichum piliferum, Hair Cap Moss.

Mr. Beaman proceeded to speak of the very kind and cordial reception met by the Institute in this place to day. In recognition of these hospitalities, he submitted the following, which was unanimously adopted.

Resolved, That the thanks of the Essex Institute be tendered to Mr. John Bray, who owns the ground where this meeting is held; to Messrs. Theophilus Herrick, Jr., John T. Davis, and other citizens, for their kind attentions; to Mr. Hassler of the Coast Survey who was very attentive upon Thompson's Mountain; to the Proprietors for the use of Liberty Hall; and to the Rev. Charles Smith for tendering the use of the Parish Church.

The meeting then adjourned, and the company, to the number of about two hundred, returned home with much pleasure from the excursion.

Thursday, August 2, 1860.

FIELD MEETING AT HAMILTON.—This was the fourth meeting this season, and one of the pleasantest of all. The spot selected for the gathering was in the midst of the Hamilton Ponds, so called, which, five in all, are situated in the adjacent corners of Hamilton, Wenham and Essex. All these being connected, finally reach the sea by means of the largest, Chebacco, or Essex Pond, delivering its waters into Essex River. A very worthy establishment is kept by Mr. John Whipple, on the road between Beck's and Chebacco Ponds, in a most attractive situation; and this was reached to-day by a large company, most of whom arrived by the Eastern Railroad, having a rather long ride, or walk, from the Hamilton Station, and the rest by pleasant drives over the various roads that traverse this region.

The forenoon was spent by some in pleasure excursions around the shores of the ponds, or in the diversified pastimes

of rowing, sailing and fishing, in and from the numerous boats with which these waters are well provided. Others made scientific explorations here and there, while others, as usual, gave attention to whatever of antiquity and historical interest the vicinity might afford.

Some three hundred persons assembled on the shady platform of Mr. Whipple, and, neither the President nor Vice President being present, Hon. Allen W. Dodge of Hamilton was called to the chair.

The following announcements of donations were then made.

To the Library—from Henry F. Shepard ; T. J. Hutchinson ; George C. Chase ; Joseph W. Stone ; Martyn Paine of New York ; E. M. Stone of Providence R.I. ; John L. Russell ; Smithsonian Institution ; Massachusetts Historical Society ; Philadelphia Academy of Natural Science ; Canadian Institute at Toronto C.W. ; Samuel A. Green of Boston ; N. J. Lord.

To the Cabinets—from R. H. Wheatland ; Charles A. Putnam ; J. Burchstead of Wenham ; Charles F. Williams ; David Moore ; John Rider ; J. M. Ives.

Letters were read from F. B. Perkins of Hartford Conn. ; M. Miles of Flint Mich. ; Trustees of New York State Library ; F. W. Putnam ; A. W. Dodge of Hamilton ; David Choate of Essex.

The Chair then entered into a very happy vein of remark, by way of welcoming the Institute to the town of Hamilton. In this address, which though extended, commanded the close attention of all, the following noticeable points were stated.

Hamilton, with an average territory, is strictly rural, with

only about nine hundred inhabitants. Manning's Mills on Ipswich River, is its only manufacturing concern, and that is not a large one. The town was set off from Ipswich in 1793, and named in honor of the celebrated Alexander Hamilton. Some twenty years ago, a proposition was made that this name should be surrendered and a new one taken, so that a manufacturing village in the west of the state might be called after the great American Statesman, but the idea met with no favor whatever.

This place has the honor of being the home of the Rev. Manasseh Cutler, a man of lovely character and brilliant talent, and of whom very much has been written already. He represented this district in Congress from 1800 to 1804. But he was better known as a naturalist especially in the department of Botany; and at his house, yet standing, he was often visited by men of science from abroad.

Felt, in his History of Ipswich, has noted the fact, probably unparalleled, that in certain families of the name of Appleton, residing here, there inheres a strange tendency to bleed profusely from the slightest wound. These "bleeders" as they are called, are all the sons of daughters in the direct line of descent; and no female or sons of males in the line are ever known to exhibit this peculiar condition. The hemorrhage begins in eight or nine days after the injury, and continues in spite of all efforts to the contrary, till extreme prostration and sometimes death ensues. This wonderful phenomenon has never found any explanation.

The Chair also spoke of the potato rot, a malady which we know next to nothing about, save its disastrous effects. Appearances favor the opinion that it has an atmospherical cause, and is not due to insects, as some maintain; but whatever it be, it seems declining, and we hope it may soon disappear.

Some remarks on vegetable instinct, and an eloquent tribute to the utility and happy character of the Field Meetings, closed this address, which met throughout the hearty approbation of all.

Dr. George Osgood of Danvers said that he had been both pupil and friend of Dr. Cutler, whose name is so dear to the people of Hamilton. He had rambled in these woods with him fifty-five years ago, when he stood as one of the pioneers of American Botany. From him he had his first lessons in that study of nature, which during a long life, have given him such pleasure and instruction. He proceeded to discuss the characters of the Tulip Tree (*Liriodendron tulipifera*) and the Catalpa, (*C. bignonioides*) giving some statements as to their rate of growth and value as ornamental trees. In the rambles of the forenoon he had collected many beautiful plants, such as the Purple Orchis (*Platanthera spycodes*) Buttonbush (*Cephalanthus*) and Indian Pipe, (*Monotropa*).

S. P. Fowler of Danvers read the following essay on the *Changes produced by civilization in the habits of our common birds.*

Civilization has produced no greater changes in our country, than it has in the habits of our common birds. Our occupations, architecture, mode of cultivating the soil, habits, opinions, and even our legislation, serve to produce this change. The establishment of a fort, or fur post in the Indian country, or the opening of the forest for a clearing, by the squatter, effectually and at once changes the mode of life of many of our birds. Thus we see the near relation they sustain to us. But I wish more particularly to notice at this time the changes that have taken place in the habits of our birds in Essex County, during a period of fifty years. None have been noticed, I think, in our rapacious birds. They have become less numerous than formerly, although they continue to breed among us. The Baltimore Oriole still con-

tinues to construct her nest after the old pattern, but has learnt to weave it from materials furnished by civilization. I have a beautiful nest of this bird, made wholly from materials swept out of the door of a milliner's shop, woven and interlaced with ribbons and laces and other fine things that ladies wear, including a threaded needle, that girls so often lose. In regard to the singular habits of the Cow-l'en-Bird in not building nests of its own, but laying its eggs in other bird's nests, and leaving them to the care of a foster parent, there seems to have been no change, for many years at least. All our ornithologists have failed as yet to account for the vagrant habits of this bird. Darwin, in his *Origin of Species* has at length, as he supposes, solved the mystery. The habit as seen in the European Cuckoo, which is similar to the Cow-bird, he thinks arises from the slave-making instinct of animals. He reasons in this way: Now let us suppose that the ancient progenitor of our European Cuckoo, had the habits of the American Cuckoo; but that occasionally she laid an egg in another bird's nest. If the old bird profited by this occasional habit, or if the young were made more vigorous, by advantage having been taken of the mistaken instinct of another bird, than by their own mother's care, encumbered as she can hardly fail to be, by having eggs and young of different ages at the same time; then the old birds, or the fostered young, would gain an advantage. And analogy would lead me to believe, that the young thus reared, would be apt to follow by inheritance, the occasional and aberrant habit of their mother, and in their turn would be apt to lay their eggs in other bird's nests and thus be successful in rearing their young. By a continued process of this nature, the strange instinct of our Cuckoo could be and has been generated.

Some modern naturalists have noticed among some animals, certain aberrant and mutilated forms, and established what they term the theory of degradation. And, for an example, they give us the misplacement of parts, such as are now exhibited in some fish, such as the flounder, turbot, and halibut. These are supposed to have once moved about upright, like most fish, but from some cause or other, a long time ago, they were thrown over and made to swim upon their sides, their squinting eyes stuck upon the top of their heads, and their mouths twisted awry. Some theologians

say, that man even is in a state of moral degradation, and his affections misplaced. But I think we are precluded from supposing that the Cow Bird has at any period suffered from degradation or misplacement of its parts, thereby rendering it incapable of incubation, from the fact, that upon dissecting it, no disarrangement has as yet been found.

To my mind, it is evident, after giving the subject considerable attention, that the Cow-bird's unnatural habits are such as were given it, by the Author of its being, and are not the result of the slavery instinct, degradation, or the vice of habit. This is very evident, when we consider the singular fact, that when its solitary egg is deposited with those of its duped nurse, the parasite's egg invariably hatches from twenty-four to forty-eight hours before those of the foster-parent. Here we find a special provision made in favor of the Cow-bird, on which depends the continuation of the species. How Mr. Darwin can account for this, by his theory of slavery instinct, we cannot imagine. I have for many years noticed one or more young Cow-birds in my garden, reared principally in the nests of the Yellow-bird. Sometimes the eggs of the parasite fail to hatch, by a floor being laid by the owner of the nest over the egg and another story being added to the domicil. The wailing note of the young Cow-bird usually attracts the attention of my family, and they are amused in noticing the fond maternal kindness of the little step-mother, towards the large, chubby, sooty foundling. We have noticed for several years a change taking place in the habits of our Crow blackbird. They are becoming domesticated, like the Rook of England. This has been brought about by the planting of the white pine in our cultivated grounds. Wherever a cluster of these trees lift their heads thirty feet, they are visited by these birds for the purpose of breeding, even when growing in our populous villages. They are absent, for the most part, from their nests during the day, showing that they are not yet perfectly at home in their new location. The purple finch has likewise followed our cultivated evergreen trees into our grounds—a few years since, they were only to be seen in our cedar pastures, but they are now quite numerous. With me they breed on the branches of the spruce, and feed early in the season on the flower buds of the white elm, and when these fail, I am sorry to say, upon the fruit buds of the pear tree.

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The Cedar bird, which has become domesticated to a considerable degree, within a period of forty years, has discovered that our cultivated fruits are more juicy and palatable, than the hard dry berries of the Red Cedar. Hence the changing of its name, within my recollection, to Cherry-bird. It now wholly escheweth its former food and haunts, and while it has learnt to love our summer fruits, it has likewise acquired a relish for our canker worms.

The Robin is the most familiar bird we have, and has been the longest domesticated. This has taken place in consequence of its cherished name, early given to it by our ancestors, which led them to spare the bird—which name, by the way, more properly belongs to the Bluebird, its mild and quiet habits more nearly resembling the Robin Red Breast of England, than our ardent and vociferous fruit-eating thrush which we call Robin. The special legislation afforded the Robin in our Commonwealth, within a few years, has done much to completely domesticate them, and thus rendering them, in my judgment, a great nuisance to the fruit grower. If any law is necessary to protect our birds, it should be sufficiently broad to cover all of them. I would make no exceptions. The constant and cruel enactments, murderous deeds and mean contrivances to destroy and poison crows, would have resulted, long ago, in the destruction of the whole species, were they not very intelligent and sagacious birds, as fully able to take care of themselves, as those who are laboring to destroy them. Our present bird law is a queer piece of legislation, evidently drawn up by persons, who had not one particle of knowledge, sufficient to classify our birds into orders, deemed by them useful or noxious. For instance, no protection is given in the act to the Swallow family, Woodpeckers, Flycatchers, Wrens, &c., all perfectly harmless, injuring no one, and whose whole lives are spent in destroying noxious insects. I can shoot, or employ others to shoot all the birds above enumerated, every hour in the day, and every day in the year, when they are to be found, and no penalty would be incurred. But if I should shoot a Robin on my own ground, in the act of eating the last cherry, which he had overlooked on the tree, I should subject myself to a fine of two dollars!

The Swallow tribe has undergone more changes, probably, than any other order of birds. The Barn swallows have

long since left their ancient breeding places, the overhanging cliff of rocks, and sought the habitations of men. The Chimney Swallow has deserted the hollow sycamore, its ancient home, for our unoccupied chimneys. The Cliff Swallow no longer frequents the shelving rock, but has sought shelter under our roofs. The same may be said of the Purple Martin and White bellied Swallow, as having left the uncultivated portions of the country, to seek protection in a home among the habitations of men. The Sand Martins are the only species which continue to rear their young in the river bank. Man's civilization has not as yet induced them to leave their ancient homes.

Great changes have been observed in the appearance and disappearance of the several species of swallows. During a period of less than fifty years, the purple martin has become comparatively scarce in the eastern part of Essex County. Some authors say, upon the authority of Prof. Kalm, that the purple martin was not seen in New England previous to the Revolution. But I have examined Kalm's travels in this country, and cannot find that he says anything about the appearance of the Martin. It is certain they were numerous in this vicinity, forty years ago, and that they are now very scarce. I think it is equally certain that the Barn Swallow is becoming less numerous. One of the causes, I think, which has led to this, is our modern tight barns, the poor swallow being as it were, shut out of house and home. On the other hand, Chimney Swallows have become very abundant. I can distinctly remember when they were rarely seen. The White-bellied Swallows have become likewise very numerous, and as they are so quarrelsome in their habits, that one pair can only agree to live together in a box, they are driven sometimes to great straits, to find a domicile. Last year, I discovered this bird, building in an old nest of the Baltimore bird. I was greatly interested at first in this discovery, thinking I had found at last, a new species of bird in my grounds. The nest retained its old outlines, but the swallow had fitted up its interior, so that it presented to me a different appearance. If Mr. Darwin's theory of slave instincts in animals be true, why may we not suppose that in time those white-bellied swallows that cannot find accommodations in boxes or such places as they would like, would

acquire the habit of using old bird's nests ; and when they cannot be found, attempt a forced entry into an occupied nest, wherein to deposit its eggs, and thus acquire the idle habits of the Cowbird.

In conclusion, I would say that, without doubt, many more changes in the habits of our birds, and the introduction of new species, will take place around us during the coming fifty years. The results following the opening of the Pacific Rail Road will not be confined to commerce and trade, for we see that plants invariably follow the track of these roads, and birds as surely follow vegetation. It is well known that rivers, mountains and coast lines, are used by birds to direct and assist them in their migrations, and why may not railroads. The voluminous Pacific Rail Road Reports themselves have brought to our notice many new birds, which we cannot fail to recognize when they arrive among us.

George D. Phippen, of Salem, had come to the meeting by that pleasant drive which leads through Manchester Woods. Here Flora was found to be in excellent circumstances, and beautiful plants in great variety were to be had for the picking. He exhibited Pyrolas, Cornels, etc. with the Beach Pea (*Lathyrus maritimus*) the Tufted Loosestrife (*Naumburgia thyrsiflora*) and the beautiful Willow-herb (*Epilobium*.) In answer to a question, Mr. P. sketched the outlines of the natural family to which the Sumac belongs, and noticed the various species of Rhus that grow among us, including the Poison Dogwood, (*R. venenata*) and the Poison Ivy. (*R. toxicodendron*.)

Dr. R. H. Wheatland, of Salem, responded to some inquiries by detailing the principal features in the development of the common Toad. The Toad deposits its eggs in the water in the latter part of April. They soon hatch, and the small pools may be seen almost black with the multitudes of spawn. These, in about seven weeks, go through all their changes and hop out on dry land as miniature toads, and in numbers almost without number ; from whence they

scatter in all directions. Their insatiable appetite for insects renders them great helps to the cultivator, though he has rarely been ready enough to confess his indebtedness to them. Different species require very different periods for full development, and some more than the common toad and some less; our knowledge about the matter, in detail, is very little.

Rev. C. C. Beaman, of Salem, made some pleasant remarks upon the natural beauties of this locality, and further spoke of some of the historical points raised by the chair.

Hon. David Choate, of Essex, author of an *Essay on the Geographical and Agricultural Survey of the County*, continued the topic of the last speaker. He had felt deeply impressed with the remembrance of the aboriginal red men, whose these delightful hills and waters once were. Not long since he saw one of these, a relic of Indian greatness, standing at the church door; and when, upon invitation, he addressed a few remarks to the children of the Sabbath School, he had listened to him with the most intense interest.

On motion of Mr. Beaman, it was then

Resolved,—That a vote of thanks be given to Mr. John Whipple, for the use of this spacious platform, or tent saloon, for this meeting of the Institute, for the courteous permission to use the grounds, and for other civilities to the large number in attendance; also to the several gentlemen of Wenham and Hamilton who have acted as guides to the party.

This meeting was very successful, and the large company appeared to enjoy the proceedings very highly.

Thursday, August 16, 1860.

FIELD MEETING AT IPSWICH.—This, the fifth this season, happened to fall on the 226th anniversary of the incorporation of this sterling old town. A company of flattering magnitude arrived by the early train, and various explorations were speedily planned and put in forwardness. “Town Hill,” probably the highest land in the place, received a large share of attention ; another party found their way to Ipswich Beach ; and yet others visited Castle Neck, where stands the lighthouse, and where is also located the farm and boarding-house of Capt. Humphrey Lakeman, a well known and worthy citizen of old Ipswich. He has always been prominent in public affairs, and equally given to hospitality and kind offices, till more than seventy years have ripened upon him in the midst of his good works. In this region the sand has played such antics as continually remind one of the wilds of Nubia, and the buried temple of Abou-Simbel. Whole apple trees of liberal size have been buried under the accumulating hillocks of shining white sand, till only the lesser, top boughs remain exposed ; these however, still bear plenty of fruit. Ipswich has, until within a few years, enjoyed the honor of being the location of the Probate Office for this County, but that has now departed for a new position in Salem. The buildings devoted to this and the other Courts yet stand, but have suffered some alteration. The other County Institutions, the Jail, the House of Correction, and the Insane Asylum are still in active service ; but much of the early consequence of the town is now lost. Very much remains to prove its antiquity ; venerable dwellings, the time honored tavern, the academy, incorporated in 1828, the staunch old bridge built in 1764. The place, in fact, is all full of the antique, so far as any of New England can be. Two Englishmen were kindly received here in 1611. Three years later, Capt. John Smith, the famous, praised “Agawam”

specially, as he did almost every other place along the coast. John Winthrop, son of the Governor, commenced a settlement here in 1633, and the next year "Agawam" was incorporated as "Ipswich," to bear the name with honor for more than two centuries.

Three o'clock, P.M. The formal meeting was called to order in the Town Hall, by Vice President Russell, who explained the objects and plan of the Institute, as usual. Donations were then announced, as follows:—

To the Library—from Henry M. Brooks; Zoologischen Gesellschaft, Frankfurt, a. m.; S. A. Green of Boston; Boston Society of Natural History; Philadelphia Academy of Natural Science; C. B. Richardson of New York; J. W. Stone; A. H. Sanger of South Danvers; John Andrew.

To the Cabinets—from J. M. Ives; Miss M. G. Wheatland; Henry Perkins; Edward Andrew; G. F. H. Markoe; A. H. Sanger of South Danvers.

Letters were read from the Department of the Interior; Smithsonian Institution; C. M. Endicott; S. P. Fowler of Danvers; and Dr. C. Johnstone of Baltimore, Md. The last named accompanying two small parcels of the "Nottingham Earth."

The following communication from Henry F. King was then read:—

The two small packets received from Doct. C. Johnstone of Baltimore, each containing a portion of earth from the same stratum, but from different situations above and below Nottingham, Calvert County, Md., have been submitted to microscopical examination. They belong, geologically, to the Miocene Tertiary formation of the United States, and in general characters agree with the infusorial earths from the Rappahannock River, Va.

After a preliminary examination, we find them to contain, among others, the following fossil Diatomaceous Plants, viz :

Heliopelta Metii, Ehr.
Heliopelta Leeuwenhoekii, Ehr.
Heliopelta Euleri, Ehr.
Heliopelta Selligueii, Ehr.
Pyxidicula operculata, Ehr.
Pinnularia Couperii, Bailey.
Coscinodiscus gigas, Ehr.
Coscinodiscus radiatus.
Coscinodiscus oculus iridis, Ehr.
Gallionella sulcata, Ehr.
Actinocyclus undulatus, (Senarius, Ehr.)
Navicula Bombas, Ehr.
Navicula striatula, var.
Craspedodiscus elegans, Ehr.
Zygoceros rhombus.
Sceptroneis caduceus, Ehr.
Podiscus Rogersi, Bailey.
Teroceratium favus.
Dictyocha fibula.

The variety of earth from just above Nottingham is cleaner and appears to have more specimens of *Heliopelta* than that just below.

We agree with Doct. Johnstone in believing the Nottingham earth to be the same as Bermuda Tripoli ; at least we are now certain of another locality of the *Heliopelta*, heretofore considered so rare. A communication by Dr. Johnstone, arguing this point, was read at a meeting of the American Scientific Association recently in session at Newport.

In the year 1844, Prof. Bailey received from M. Tuomey Esq., of Petersburg, Va., a fine specimen of infusorial earth, labelled "Tripoli from Bermuda." Mr. Tuomey received it from some mineralogical correspondent, and had no doubt that it came from the Bermuda Islands. Collectors have sought in vain for it at those islands, and Bermuda as its locality has long since been given up. The *Heliopelta* and its varieties are abundant in Bermuda Tripoli and have not yet been noticed in any other earth, except the present Nottingham specimens. From this only specimen received by Prof.

Bailey from Mr. Tuomey, specimens were sent to Prof. Ehrenberg, the celebrated German Naturalist, and by him distributed among the leading microscopists of the world.

The Nottingham specimens appear to be the same as the infusorial earths from the Rappahannock, with the exception, principally, that the *Actinocyclus* and some other forms in the latter, are replaced by the beautiful *Heliopelta* in the former, as in the Bermuda Tripoli. They are interesting to the geologist as showing the apparent resemblance of geological formations.

The statements of this communication were further commented on by the chair.

John M. Ives, of Salem, offered some remarks upon the various fruits now engaging the attention of the horticulturist.

The Chair exhibited a rose, from the center of which a green stem had been produced; a phenomenon not very rare, but full of botanical interest, the rationale of which he explained to the meeting.

George D. Phippen, of Salem, after making some remarks on the plants collected during the day, read the following communication on

THE INSTINCT OF PLANTS.

Whether this term be inadmissible or not, it cannot be denied that plants do exhibit actual sensibility, though of a low order, and that, in many cases, they have the power of "making movements tending to determinate ends."

The Creator has placed on the earth many races of sentient beings of high order, and these with such a structure and organization that their very existence here is made to depend upon the presence of another class of organized life, wholly distinct in characters from the first. This latter, feeding on the store of mineral and gaseous material around, is ever made to prepare, by assimilation, the aliment of those higher creatures known as animals. Thus these intermediate struc-

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tures, called plants, are made the grand elaborators of organic matter for the whole creation ; and this first, though lowest manifestation of life becomes in this view as grand as any, perhaps, to be found in higher spheres.

Life, overwhelming in its mystery, is never deficient in self-sustaining power. It is a gift that none of its recipients have the least power to value. Yet it is given with a difference. One well says, "animals have, breathed into them, the breath of life ; while plants are breathed upon." But both streams rise from one fountain, and are fanned by the same mysterious wing.

Life is not mere organism ; implying growth certainly implies motion ; and while the motion of animal life is full of evidences of what we, too blindly perhaps, call instinct, plants, confined and restricted, are not without something of the same kind.

The vegetable economy is full of motion. Roots move downward, seeking darkness and moisture, stems upward for air and light. An Indian grass no larger than a quill, climbs the highest trees to gain these two essentials. So of roots. The author of the *Studies of the Essex Flora* says of *Bidens cornata*, "I have found vigorous plants growing in the crevices of the bark of trees, three or four feet from the ground, where the seed had been deposited by the water, when the pond by which they stood was unusually full, and a persevering root had in every case followed the retreating water till it had finally reached the earth."

While most motions of plants are apparently mechanical, others are as evidently spontaneous and voluntary. Some may be explained by the principles of endosmose and the peculiar laws that control the transmission of fluids. Setting all these distinctions aside, however, we only stop now to contemplate the wisdom that has adapted each to the special end in view.

By one of these spontaneous motions, everywhere to be seen, the upper side of the leaf is always turned to the light. This position is rigidly adhered to, even by a severe twisting of the petiole when the leaf has been designedly reversed, and whole fields of clover will thus turn their leaves to, and with the sun. Another of these movements has gained the name of "the sleep of plants," as it mostly occurs on the with-

drawal of the sun. Leguminous plants exhibit it most freely ; every one has noticed how the common Locust folds its leaves at night, and so keeps them till they are relaxed by the morning sun. The common Sensitive Mimosa takes on with something of violence, when touched, the same state in which it rests at night, yet this is hardly a state of repose or relaxation, but quite the reverse, being a somewhat strained or contracted condition. Composite flowers are slightly affected in the same way and close their heads at night and during storms. Such as the Dandelion, Succory, &c.

“ Oft as light clouds o’erpass the summer glade,
Alarmed, she trembles at the moving shade ;
And feels, alive through all her tender form,
The whispered murmurs of the gathering storm.”

Many flowers open in the morning and close at night ; but some reverse this rule, as the *Night-blooming Cereus*.

“ Bright as the blush of rising morn, she warms
The dull cold eye of midnight with her charms.”

The Evening Primrose opens its petals with some violence at night, and as some say, with a flash of phosphorescent light. The Four o’clock, opening late in the day, continues expanded all night, and droops in the morning, leaving its place well supplied by the *Convolvulus* or “ Morning Glory.”

Even the passing of a few clouds, or a slight shower, are enough to affect certain plants. Whole beds of tulips, previously drinking in the sunlight, to tinge their many colored robes, shut hastily with the plash of the first rain drops. The *Anagallis*, called the “ Poor Man’s Weather Glass ” is more sensitive still, for, by repute, it anticipates these changes so truly, that fine weather always follows its expansion.

Such movements are natural, beneficial, and certainly, evidences of life ; but whether they point to a real share of sentient happiness and consequent disposition to avoid danger, is not easy to say. Something like faintness is now and then seen among plants ; the *Impatiens* or Jewel-weed droops so quickly, on being plucked, that its very life seems to exhale from the wound. We see no such exhalation ; neither do we from the leaves of the forest, which send up clouds of vapor like a perpetual incense ; if such were visible, we might gain more vivid ideas of vegetable life.

We notice also the means by which climbing plants ascend,

and their consequent movements. The Grape, Pumpkin, Passion-flower, &c., move forward and upward by tendrils, seizing every support as animals do with their claws. The Bignonia and Ivy have fibrous processes, thrust into every crevice, carrying them up over surfaces of only the slightest inequality. There are *Galiums* and *Polygonums* that climb by the hooks and prickles of the stem. The Honeysuckle and *Convolvulus* make one tendril of the whole stem and ascend by this twining spirally, while the Dodder fastens and lifts itself by suckers that rob the plant to which they cling.

“ With sly approach she spreads her dangerous charms,
And round her victim winds her wiry arms.”

The *Clematis* employs the long petioles of its leaves, which have been compared to hands.

The *Celastrus* by its leaves and fine-drawn, spiral stems; the *Tropeolum* also by its leaves; and these, like many more, move upward thus in quest of light and air.

It is remarkable as well as inexplicable, that twining stems do not all turn in the same direction. The Morning Glory, Bean, &c., invariably turn “against the sun,” W. S. E., but the Honeysuckle; Hop and others are equally tenacious of the opposite course, and turn always E. S. W.

The Surdew of our bogs is a very peculiar plant. Its leaves, glandular, and, as it were, jewelled all over, are sensitive to the tread of insects, who are often caught in these glutinous toils; and its graceful mode of flowering, uncoiling its raceme, to place the freshest flower at the highest point, has called forth the words of Darwin:—

“ As with sweet grace her snowy neck she bows,
A zone of diamonds trembles round her brows,
Bright shines the silver halo as she turns,
And as she steps, the living lustre burns.”

We see an instinctive purpose in the economy of the Peanut, for it buds and flowers in the air like any other, and then plunges its blossom into the earth, that the hot sun may not scorch the ripening seed. Much the same end is served by certain aquatic plants that only perfect their fruit under water. Of these last the *Valisneria*, growing at the bottom of ponds, lifts its fertile flowers to the surface for impregnation, and then, by a spiral coiling of the stem, draws down the fruit to ripen beneath the surface.

Plants under difficulties will sometimes make what seem great exertions to ripen their seed and secure a progeny. Many are very sensitive just at the time of impregnation of the seed, the stamens and pistils making spontaneous movements to accomplish that end. The stamens of the *Kalmia* or Mountain Laurel, leap up toward the pistil with a jerk; and in the Barberry, this jerk is repeated as often as the filament is irritated. In the Saxifrage and *Parnassia*, each stamen in turn, bends down over the pistil, and in *Genista* and the Lupine, five stamens alternate with the other five in these approaches; while in *Nigella*, the stamens being too short to reach the pistil, it bends itself down and meets them.

Probably the closing of flowers at night or before rain is intended to preserve the pollen from extraneous moisture. Many of the Lilies and other bell-shaped flowers drop their blossoms for the like reason; but all these plants lift up the pod afterward-most rigidly to be ripened in the sun.

The production of honey in flowers might be cited to illustrate this point; for by the agency of the insects that seek it, the pollen is spread and scattered more perfectly among the pistils. The Columbines and *Apocynums* afford good examples of this; those plants having catch-fly abilities are of this class.

Such are some of the wonders of plant life, visible to all. In microscopic research, a fresh mine of manifestations appears, not belonging to the present purpose. Vitality cannot be analyzed. It is the gift of God. In many respects its nature, as shown in the fixed vegetable and in the moving creature, is the same. Both have functions, and attributes, commensurate with their welfare; but animals alone have faculties, to which plants in no sense approach.

Rev. S. Barden of Marblehead, exhibited specimens of Indian implements of stone, and made some very interesting remarks thereon. He further spoke of his obligation to the Institute for the benefits he had here obtained; his strong interest in mineralogy, and the deep pleasure he thence derived, being all traceable to the Field Meetings, where they were first excited.

David Pulsifer, the distinguished antiquarian scholar, formerly of Ipswich, was prepared to entertain the meeting with several articles, the result of his historical gleanings, but lack of time preventing, he substituted a few animated and pleasant remarks in the same vein, to the evident gratification of all.

After passing a vote of thanks to the Town authorities, of Ipswich, for the use of this Hall, to the several gentlemen who have acted as guides, and to the citizens generally, for their kindness and attentions during this visit of the Institute to their ancient town, hallowed by many associations, more especially as the adopted home of Oakes, a name endeared in the early annals of our Society and one of the most distinguished botanists of New England.

Adjourned.

Thursday, December 26, 1860.

Meeting, this evening, at the rooms, Plummer Hall, Henry M. Brooks, one of the Vice Presidents, in the chair.

Records of the preceding meeting read.

Donations received since the meeting in Ipswich, August 16, were announced:—

To the Library—from John L. Russell; John H. Stone; Samuel Colman of New York; R. B. Kerr of New Orleans, La.; Samuel A. Green of Boston; Philadelphia Academy of Natural Science; St. Louis Academy of Science; Connecticut Historical Society; Nathaniel Paine of Worcester; Wisconsin Historical Society; Pennsylvania Historical Society; Philadelphia Board of Trade; Moravian Historical Society at Nazareth Penn.; Stephen A. Chase; R. Manning Chipman, Walcottville, Conn.; N. J. Lord; Caleb Foote;

S. S. Mackenzie of Topsfield; Canadian Institute, at Toronto, C. W.; Isaac P. Foster; New Jersey Historical Society; William P. Tucker of Brunswick, Me.; Vermont Historical Society; Nathaniel Ropes of Cincinnati, O.; Daniel C. Gilman of New Haven, Conn.; Henry F. Shepard; Oliver Warner, Secretary of State; William Brown; American Geographical and Statistical Society; Mercantile Library Association of New York; Boston Society of Natural History; Zoologischen Gesellschaft in Frankfurt; H. F. G. Waters; Jeremiah Spofford of Groveland; E. S. L. Richardson of Chicago, Ill.; Town of Gloucester; G. F. H. Markoe; Mrs. N. D. Cole; John B. Alley, M. C.; Miss Rebecca Miller of Temple, N. H.; S. K. Whipple of Boston; Smithsonian Institution; David Pulsifer of Boston,

To the Cabinet—from William Clough; Matthew A. Stickney; B. F. Stedman of Milburn, Lake Co., Ill.; Augustus Fowler of Danvers; R. H. Wheatland; Elliot F. Smith of Keokuk, Iowa; S. S. Mackenzie of Topsfield; Miss Ellen Brown; Isaac O. Guild of Lynn; J. W. Standley; W. Mack; Isaac Chandler; G. F. H. Markoe; James S. Williams; C. L. Pierson; R. W. Bemis of Chicopee; Messrs. Phippen & Endicott; W. Perkins; R. Wheatland; Thomas P. Gentlee of Manchester; Charles H. Price; John Chamberlain; W. G. Webb; Charles Endicott; Henry P. Ives; Derby Pickman; Charles A. Putnam; J. Phillips; Miss H. R. Lee; George Fabens; Mrs. S. P. Fowler; M. Miles of Lansing, Mich.; N. C. Locke; George F. Reed; Daniel Currier; E. S. L. Richardson of Chicago, Ill.; L. Peirson Ward; F. W. Putnam; R. S. Rogers; Thomas Fettyplace; John W. Goodridge; Smithsonian Institution; W. B. Wyman of Marblehead; Francis F. Wallis; John N. Martin.

Letters were read from Historical and Philosophical Society of Ohio; Maine Historical Society; Trustees of New

York State Library ; Chicago Historical Society ; New York Mercantile Library Association ; Trustees of Boston Public Library ; Corporation of Harvard College ; Peabody Institute, South Danvers ; Pennsylvania Historical Society ; David Choate of Essex ; N. J. Holden of Lynn ; William Agge ; Thomas H. Barnes ; J. F. Webb, jr. ; Adams Express Co. ; S. P. Fowler of Danvers ; M. A. Stickney ; Joel Munsell of Albany ; F. S. Pease of Albany ; S. F. Nichols of Boston ; S. A. Green of Boston ; Wisconsin State Historical Society ; R. C. Kerr of New Orleans, La. ; M. Miles of Lansing; Mich. ; Smithsonian Institution.

A. C. Goodell read a very interesting paper, giving a succinct account of the literary and scientific labors of James Tytler, who emigrated from Scotland to Salem in 1795, and died in the year 1804. Many of our older citizens will probably remember this eccentric and learned person, who resided in a small house on the Neck, a short distance from the Hathorne House.

After remarks from Rev. Mr. Beaman and Mr. J. Batchelder, a vote was passed thanking Mr. Goodell for his valuable communication, with a request that he would prepare the same for publication in the Historical Collections of the Institute.

Adjourned.

Monday, January 7, 1861.

Meeting this evening at 7.30 o'clock, Vice President, Henry M. Brooks, in the chair.

Records of preceding meetings read.

Donations announced from the following :

To the Library—from Henry M. Brooks ; George C.

Chase ; S. A. Green of Boston ; Tennessee State Library ; N. J. Lord ; H. F. Shepard ; Henry E. Jocelyn ; Mrs. N. D. Cole ; C. Foote ; James B. Curwen.

To the Cabinets—from Charles H. Buffum ; George Harrington ; Samuel V. Shreve ; Mrs. N. D. Cole ; Henry E. Jocelyn.

Letters were read from John C. Holmes of Lansing, Mich. ; M. Miles of Lansing, Mich. ; S. A. Green, Librarian of State Library of Tennessee ; C. B. Richardson of New York.

The following communication from S. S. Mackenzie, of Topsfield, was read by the Secretary.

THE LOCAL GEOLOGY OF TOPSFIELD.

In speaking of this, the numerous hills, as being the most prominent objects, deserve first to be noticed. The most southerly of these, called, from the present owner, Pingree's Hill, begins near Nichols' Brook, so called, and rising gradually, attains its highest elevation at what was formerly known as Estey's Hill, from which it declines southeasterly in the same easy slope, till it is lost in the Wenham meadows. This might be called a series of hills, rather than one ; the whole elevation consists of swells or ridges, like waves of the ocean rolling in from the northeast ; and these ridges continue all the way from Ipswich River to the town of Danvers, with a constant range from north-west to southeast. Pingree's Hill, the highest ridge, is about 200 feet above the river-bed, and not far from two miles long.

Next, on the northerly side of the river, and in the western portion of the town, we have Lake's Hill. It is so named on the County Map ; but many prefer to call it Gould's Hill. Indeed, families of both names have occupied it nearly two centuries. For still another name, the older inhabitants recognize it as "Billingsgate Hill." This is also formed of swelling ridges, still ranging N. W. & S. E., with a rather abrupt termination at the northwesterly extremity. Its whole length is about a mile, the noted Treadwell Farm

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lying not far from one end. An old burial-place, now bare of monuments, is found on the southern slope, and tradition ascribes its occupancy to families of the name of Stanley.

Northerly from this lies Great, or Towne's Hill. On its southerly side the Topsfield Hotel once stood, on the site of the present house of Daniel Perkins. The summit is north of this point, and is called the highest point in town, though in this respect there is little difference between this and Pingree's Hill. Like the others, this has the wavy, ridgy surface, and is somewhat abrupt at the northwesterly end.

From this, moving southeasterly, we reach Bradstreet's Hill, which is a regular swell of land for more than half a mile. On its eastern side, however, it is broken by sharp ridges along the river meadow.

Northeasterly from Bradstreet's Hill, across the meadows and the river, rises Cumming's Hill, named from its former exclusive owners, though now its possession is shared by others. Tradition says that an ancient owner of this hill, named Howlet, gave it entire to a boy named Cummings, as a freedom present, and it is added, that the boy lived to the age of a hundred and three years. The hill is of the same general form as Bradstreet's, but somewhat higher.

Lamson's, or Third Hill is found a little further to the northeast. It has been known as "Thick Woods," but none but apple trees are on it at present. Here we have the structure of the large hills again; blunt and steep toward the northwest, furrowed and ridged through its length, and sinking gradually toward the southeast, where it continues into Hamilton.

Recrossing the river and moving northerly, Paine's Hill is reached, so called from a former owner, so says tradition. The westerly side is rather abrupt, and the easterly and northwesterly slopes are broken into knobs and ridges.

Easterly from Lamson's Bridge and beside the Ipswich Road, is a small elevation called, from its form, Round Hill. It was once planted with a single row of corn (or beans) which ran round it spirally to the top. Since then, however, part of the hill has been removed for the benefit of the highway. A willow grows on the top, planted there by one Benj. Hobbs, sixty or seventy years since.

Bear Hill may be mentioned. This lies near the Georgetown Road, on the northerly side of the town. It has the same general form as the rest, and seems only one of a series of hills that begin near the Meeting House, in Boxford, and are known in some parts as the Perley Ridges.

This wavy or furrowed figure has procured for these hills many subordinate names, as the particular hillocks were regarded. Thus, Pingree's Hill includes Dwinnell's, occupied by the Danvers road, and Towne's, by that to Wenham, while another height is known as Peabody's, and Rea's Hill is a small ridge running into Danvers. Others might be named, but all belong to one general elevation. So of that undulation called Great Hill, which lies northeasterly from Towne's Hill (on which the Hotel stood). It has no claim to a separate consideration, forming, undoubtedly, with Towne's, only one real elevation.

The soil of these hills and its fitness for agricultural and other purposes, are next to be considered. In these respects all seem much alike. The soil is always loose, with sand and gravel, a small amount of clay, and stones, large and small, near the surface. On penetrating deeply, however, the earth becomes more compact and very firm. Water, enough for man and beast, has been obtained on all these hills by means of wells. Of springs flowing out at the surface, there is no lack, but wells have been dug to all depths, from ten to twenty-five feet, to obtain more convenient supplies. The deepest well ever dug in the town was at the Hotel. This was carried down to eighty-five or ninety feet; but the only water-vein that was found, occurred about twenty feet from the surface, and yielded some twelve gallons per day. As forty horses were to be kept at the place, this supply was thought too limited, and the work went on, to the above depth. But as the lower strata seemed even dryer than the upper, the effort was abandoned and the well stoned up. It filled with water, however, and has never been dry since, but yielded abundantly. At one time, considering that a bucket was never lowered in it further than forty or fifty feet, the part below, of some forty feet more, was filled with stones, as useless, and so remains without affecting the supply.

In 1855 a well was dug near Mr. Pingree's house, about

twenty-one feet deep and fifteen feet in diameter. Here water was found about eighteen feet below the surface. The earth was compact clay and gravel with stones of all sizes. The whole was thoroughly mixed and solidified; *no part of the earth or stones being in a stratified state*; yet there were small rounded stones that appeared to belong to stratified rocks. Among the mass were also pebbles of white quartz and of sandstone. In the course of the excavation there appeared what seemed once to have been a crack, or rent in the earth, once open and afterwards filled with gravel and sand. It was about six inches wide; and though very firmly filled, could be traced nearly to the bottom of the well.

The large hills are all composed of similar materials, and all reckoned good land for cultivation. No ripple-marks occur in any of those described, save at Round Hill. This is chiefly loam and gravel, resting on sandy loam, and was evidently thrown up by the action of currents of water, as indeed most of the small ridges may have been, ripple-marks being found in them as well.

The plains and meadows will repay a moment's notice. A large plain begins at the river near the Treadwell Farm, and extends northerly to Prichard's Pond. It has a gradual ascent at an angle of about one degree. It seems to continue northerly as far as the Merrimac, and to reach westerly from Towne's Hill to the hills in Andover, making due allowance for all the minor elevations as seen from some of the high hills.

The plains are apparently all composed of one class of materials. Soil, answering well for cultivation, forms the first layer of from two to twelve inches; coarse and fine gravel succeeds, with sand and small pebbles in layers, till at eight or twelve, sometimes twenty feet deep, according to location, quicksand and water are met with. This is true of most of the plain land, though near the brooks and meadows clay appears after passing the upper layers of earth. At many points, brick yards were worked at the time of the early settlers, but none of them at present. One of these was near the place once occupied by Jacob Averill.

The meadows here yield a large amount of peat of every grade and texture. In some of them, charred stumps, and charcoal from small sticks are found three feet or more

below the surface, indicating that the swamps were burnt over before the peat was formed.

When we come to the examination of the Rocks and Minerals of Topsfield, the first object of attention is what is known as the "Copper Mine." Most that is known of this comes by tradition. It is said that an Englishman named Buntin, came here about 1760, and with some of the townsmen begun mining for copper. Three points were selected; one near the meadow, on land now of David Towne, and near the house of Elisha Towne, then living on the premises. From this they passed to another point near the junction of the roads, where they sunk a shaft; and again going up the hill to the northeast, they sunk a third one some forty feet deep, with a considerable chamber at the bottom, made by removal of this rock in the search for ore. The tradition continues, that they shipped a large quantity of the ore, or rock, for England; but as nothing was ever heard of it, it was supposed that ship and cargo were lost at sea. About 1838 these shafts were reopened, and in them some of the old mining tools were found, shovels, picks, &c. An examination was made as to the utility of again working the mine, but nothing was done further, as there appeared no prospect of profit.

The rock at these places is of a green color, and very hard when first broken up, but by exposure to the air, it crumbles down into slaty or scaly fragments. It can be traced nearly two miles from the meadow above named, in an easterly direction. It appears near the surface just east of the house of Daniel Towne. It passes under the river at the old fordway, sometimes called the "Old Weirs." Still to the east the Newburyport Railroad cuts through it, near the house of David Perkins, to a depth of fifteen feet. Here it betrays the presence of copper quite as much as at any of the other points. In part the rock consists of quartz; and the indications of metal are increased very much by the action of the atmosphere. How much further the formation extends eastward is not known.

Few extensive ledges of granite exist here. Boulders, large and small abound in and upon the hills, scattered and distributed with little or no order.

In form, size and color, they are of course greatly diversi-

fied. Formerly, a large one, fourteen feet long and two feet in diameter, lay on the hill nearly southwest from the arched bridge over Ipswich River, and some forty rods from the turnpike. It was egg-shaped and almost wholly buried in the earth. This rock was worked into stones for the above bridge in 1853. It is a peculiar rock, with no other like it in the region. It may have been one of the "lost rocks" of which we sometimes hear; but as it had lain there some time and no owner called, it was worked into the bridge.

In building the railroad, on the north side of the river, an excavation was made through a hill and ledge near the bridge. Here the cut was actually carried down *through the rock*, which was found to rest on sand. It is only a mass of compacted, reddish gravel; and on exposure to the atmosphere, crumbles to dust. It seems very retentive of water, and is considerably used for grading. A hill of the like quality is found on the easterly side of the Common; and here, also, the rock rests on the sand. Hillocks and rock of the same kind occur in a pasture north of the Common, formerly belonging to the parsonage; but whether they rest on the sand is not yet known.

At the house of Mr. Small, a well was sunk eighteen or twenty feet into a ledge, and receives its water through a seam. A ledge appears on the east side of the Academy Hill, and into it a well has been sunk some eighteen feet. Green quartz was found near the bottom, but no spring; the water is supplied from seams.

There are three traditionary accounts of gold and silver having been found and mined for here.

On the eastern side of Rea's Hill is a spring, near the Danvers road. It is said that as Joseph Porter was once clearing it out, he found a lump of gold, or a stone containing that metal, worth from twenty to forty dollars. Nothing more is known of it. The ground at the place shows signs of the action of water, multitudes of bowlders being strewed in all directions around.

About fifteen rods south of the house of Ephraim Perkins, and four rods or more east of an angle in the road, is the appearance of an old excavation, now filled up and overgrown with grass. It is said that one Moses Perkins, then owning the land, mined there for silver, assisted by Buntin.

One Smith formerly lived at a place called the "Old House Field," now owned by Silas Lake. While digging a well, he found what he supposed to be a lump of gold. One day during his absence, a strange gentleman called and requested a drink of cider, which the benevolent mistress went to the cellar to draw, leaving the stranger alone and the gold lying on the mantel. When she returned, both had unaccountably disappeared, nor were ever seen again. A mysterious circle drawn with chalk on the center of the floor where she left him, was the only vestige remaining. The obvious conclusion, with people at that day was, that the Devil had thus stolen their gold. This, of course, is tradition unsupported by other proof. The house stood easterly from Mr. Lake's, on an old way passing by the old parsonage, which stood in the "Parsonage Pasture."

Prichard's Brook is a small stream flowing from Prichard's (or Hood's) Pond. It unites with Pye Brook, and comes from Boxford, and the resulting stream continues southeasterly under various names for a considerable distance. The stream then divides; and one part, turning easterly, takes the name of Howlet's Brook, and, passing Perkin's Mill, falls into Ipswich River. The rest, known as Peabody's Brook, keeps a southerly course to what was formerly Peabody's Mill, thence, by the name of Mile Brook, to the river. Near the separation of these two streams is an ancient house, occupied by Wm. Rogers in 1737, and fifty years later by Asahel Smith, a son of Samuel Smith, Esq., Town Clerk. Of the four sons of this Asahel, viz: Samuel, Asahel, Jesse and Joseph, there are some strong reasons for supposing that Joseph was the identical "Jo. Smith" (or the father of him) who founded the sect known as Mormons.

Monday, January 21, 1861.

Meeting this evening at 7.30 o'clock, Rev. C. C. Beaman in the Chair.

Records of preceding meeting read.

Donations announced as follows :

To the Library—from S. A. Green of Boston ; George R. Curwen ; Philadelphia Academy of Natural Science ; American Antiquarian Society ; S. Q. Felt ; C. W. Swasey ; C. B. Richardson of New York, N. Y. ; Societe Paleontologique de Belgique, Anvers ; Joseph A. Goldthwaite.

To the Cabinets—from Thomas Coleman of Boston ; George A. Perkins ; S. Q. Felt ; Samuel R. Curwen ; S. R. Phelps ; N. Berry.

Letters were read from Trustees of Boston Public Library ; S. F. Haven of the American Antiquarian Society ; S. A. Green of Boston ; Thomas Coleman of Boston.

A paper was read by Jacob Batchelder ; recommending the adoption of the Decimal System in weights and measures ; the manufacture of coins of an exact measure of diameter with the inscription and devices sunk into the surfaces to diminish the liability of its being worn by friction ; and the establishment of a standard of weight by means of the dropping of water from a cone of specified material and proportion, at a stated velocity, temperature, barometrical pressure and moisture ; such quantity of water in the form of a cube to be regarded as an unit of weight ; the body, or a multiple of it, the unit of solid measure ; one side of the cube, or a multiple of it, the unit of length ; the square of it the unit of measure of surface, and every coin in circulation to be made of a decimal weight, measure and value.

Remarks were made by Messrs. M. G. Farmer ; George D. Phippen and others, in relation to the above communication.

Adjourned.

Monday, February 4, 1861.

Meeting this evening at 7.30 o'clock, A. C. Goodell, Jr., in the Chair.

Records of preceding meeting read.

Donations were announced as follows :

To the Library—from L. A. Huguet-Latour of Montreal, C.E.; New York State Library; Editors of High School Gazette; John H. Stone.

To the Cabinets—from James Bartlett of Wenham; Miss Hannah G. Kimball.

Letters were read from Chicago Historical Society; Trustees of New York State Library; Maine Historical Society; American Geographical and Statistical Society; Henry R. Stiles of Brooklyn, N.Y.; S. P. Fowler of Danvers.

Moses G. Farmer read an interesting paper on the combustion of coal—the amount of heat devolved from a given quantity of the different varieties under similar influences. This paper was considered a partial result of a series of experiments in process of being performed.

After some discussion, participated in by Messrs. Jacob Batchelder, the chair and others;—*voted*, that the thanks of the Institute be tendered to Mr. Farmer for his valuable communication, and that he be requested to prepare the results of his experiments for publication in the Proceedings.

H. Wheatland exhibited a piece of wood recently presented by Mrs. T. Cole, purporting to be a piece of a coffin, in which was deposited the remains of one of the victims of the witchcraft delusion, and which was dug up by the late Hon. Benj. Goodhue and Dr. Joseph Orne on Gallows Hill, on the 2d of May, 1783; also a letter from Jonathan Goodhue of
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New York (son of the above named Benjamin,) giving the particulars of the same, addressed to Ichabod Tucker, of Salem, and dated August 19, 1814.

A conversation then ensued on the subject of witchcraft, the trials, &c., which took place at Salem in 1692.

Adjourned.

Monday, February 18, 1861.

Meeting this evening at 7.30 o'clock, A. C. Goodell Jr., in the chair.

Records of the preceding meeting read.

Donations were announced from the following :

To the Library—from Henry B. Hooker of Boston ; Samuel G. Drake of Boston ; Samuel A. Green of Boston ; Secretary of State Mass. ; Canadian Institute ; C. B. Richardson of New York ; Boston Society of Natural History ; E. M. Stone of Providence, R. I. ; N. J. Lord ; J. B. Alley, M. C. ; Elliott Society of Natural History, Charleston, S. C. ; Dorchester Antiquarian and Historical Society ; W. D. Pickman ; G. C. Chase ; W. Brown.

To the Cabinets—from James B. King ; H. M. Brooks ; Miss R. E. Stickney ; W. S. Roberts.

Letters were read from Massachusetts Historical Society ; Wisconsin State Historical Society ; Trustees of Boston Public Library ; Young Men's Mercantile Library Association of Cincinnati ; Franklin Bacheller of Lynn ; H. R. Stiles of Brooklyn, N. Y. ; A. S. Packard, jr., of Brunswick, Me.

Jacob Batchelder read a translation of a paper by M. Louis Vilmorin. It consisted of a detail of the author's experiments, undertaken for the purpose of improving the

saccharine qualities of the Beet-Root, by selecting as seed-bearers, during several successive years, the specimens of the Beet, found to be richest in sugar. This point was determined by boring many individual beets with a metallic cylinder, and expressing the juice from the pulp thus obtained. The density of the juice, which is proportionate to the sugar it contains, was ascertained by weighing, in the different specimens, a small silver button, carefully securing uniformity of temperature and other conditions which might affect the result. By this method pursued during five years, he secured specimens of the juice which yielded twenty-one per cent. of sugar, and established the important fact of the hereditary transmission of the saccharine qualities of Beet Root.

A general conversation on subjects suggested by the above communication ensued, participated in by Messrs. J. A. Goldthwaite; G. D. Phippen; H. Wheatland; the chair and others.

Adjourned.

Monday, March 4, 1861.

Meeting this evening, A. C. Goodell, Jr., in the Chair.

Records of preceding meeting read.

Donations announced from the following :—

To the Library—from J. F. Allen; James A. Gillis; Ohio Mechanic's Institute at Cincinnati; J. Linton Waters of Chicago, Ill.; H. F. Shepard; Alfred Stone; Samuel R. Curwen; C. Allen Browne; A. G. Browne, Jr.; Franklin Bacheller of Lynn; Miss Mary R. Kimball.

To the Cabinets—from Jacob C. Hiltz; J. B. King; W. G. Webb; M. C. Martins of Bissau, W. C. A.; Charles Millett, 2d.

Letters were read from Historical Society of Pennsylvania ; Chicago Historical Society ; J. Colburn of Boston ; W. G. Webb ; George Ropes ; G. F. Flint.

Abner C. Goodell, Jr., read a memoir on the life, literary and historical labors of Alonzo Lewis, the historian of Lynn.

Henry Wheatland presented, in behalf of W. G. Webb, a specimen of *Phyllium siccifolium*, from the Seychelle Islands, accompanying the same with some remarks upon the habits and history of the orthopterous insects, and alluding in a general manner to the collection of Insects belonging to the Institute.

Jacob Batchelder read a paper from Vilmorin, on the *Ulex Europæus*.

Adjourned.

Monday, March 18, 1861.

Meeting this evening, A. C. Goodell, Jr., in the Chair.

Records of preceding meeting read.

Donations from the following announced :—

To the Library—from N. J. Holden of Lynn ; G. Andrews ; C. B. Richardson of New York ; Fitch Poole of South Danvers ; O. C. Marsh of Lockport, N. Y. ; J. Kimball ; W. Briggs ; W. S. Roberts ; Miss D. Andrews ; J. Chadwick.

To the Library—from S. V. Shreve ; N. Berry ; J. B. King ; W. G. Webb ; F. Webb ; W. S. Roberts.

Letters were read from New Orleans Academy of Science ; W. J. Howard of Central City, K. T.

Adjourned to meet on Wednesday evening next, at the same hour.

Wednesday, March 21, 1861.

Adjourned meeting this evening. Vice-President H. M. Brooks in the Chair.

Records of preceding meeting read.

George D. Phippen occupied the hour in giving an interesting account of Fibrilia or Flax Cotton, in connection with the Bast tissue generally, as found in trees and plants, accompanied with numerous specimens, which called forth considerable discussion from members and others present, whereby two hours of the evening were pleasantly and profitably passed by such as were fortunate enough to attend. Much information was elicited upon this important subject, which, ere long, by new appliances of inventive genius, may materially affect our peace, comfort and prosperity.

The manner of the formation of plant tissues, particularly the Bast tissues, so called, as laid on by the plastic hand of nature, was illustrated; it being deemed important to a correct understanding of the analytic and eliminating processes employed in the manufacture of fibrilia. Results prove that a careful and microscopic inspection of the manner in which the minuter fibrils of this tissue are deposited by concealed and mysterious operations within the sap vessels and around the stem, was suggestive of a course of manipulation, which, as is believed, has at last been crowned with success.

From these peculiar tissues do we derive both material for the strongest cables and stoutest canvass, as well as thread for the finest needles and muslins which vie with gossamer in texture.

This tissue, where of sufficient strength for manufacture, is found chiefly within two of the principal groups or natural orders of plants, and are designated by botanists as the Nettle and Mallows families.

The tall nettles and wild hemp by the road sides are familiar examples of the former, and the Althea and Hollyhock of the latter.

Any person who has seen the Cotton plant in blossom, would at once associate it with the Mallows family, and not only does it furnish Cotton within its capsules, but from its stems can be manufactured a fair quality of fibrilia.

Jute of commerce, is of this order, and it is known in some parts of the world as Jews' Mallow ; its leaves being cooked by that people for food.

The genus *Linum*, or flax, is not strictly of this family but is closely allied.

Hemp and China grass belong to the nettle group.

Fibrilia or Flax Cotton can be wrought either alone, or with wool or cotton. Various fabrics were here exhibited together with the article in the raw state and mixed with other materials both manufactured and unmanufactured.

The calico prints were very brilliantly colored, and it is well known that when made of this material they both take and retain colors better than all cotton goods. It is found also that fibrilia is the only material that can be wrought with wool, without injury to the fabric made ; on the contrary, it imparts lustre, strength and durability to it.

It has been supposed by some that articles made of fibrilia would be cold in the wear ; as is known to be the case with linen goods, but this quality is almost entirely overcome by the fineness of elimination to which the fibre is subjected before spinning ; this is chiefly performed by a newly invented brake, which reduces the flax to the shortness and tenuity of cotton staple, after which it can be wrought upon cotton machinery. This brake, the invention of Mr. Stephen Randall, of Rhode Island, it is believed, will work as great a change in the manufacture of flax, as did the Cotton Gin of Whitney with cotton.

The immense quantity of flax and hemp raised in our western country, was alluded to, and the cheapness with which it could be reduced to fibrilia and conveyed to the mills ; much of the former being raised for seed only, while the plant containing the fibre was little better than wasted. Allusion was also made to the great variety of plants which contain this fibre, and which grow spontaneously all over the country ; and among us particularly the *Asclepias* and Indian Hemp were cited.

Beautiful specimens of the fibre of the *Asclepias*, or common MilkWeed, were here shown, which were of great length and of a silvery lustre.

Here was positive proof that some of our most common weeds contain this fibre in large quantities, and without doubt a few of them would repay cultivation for this purpose, should Yankee ingenuity but continue its exertions in pursuit of a substitute for the arrogant pretensions of King Cotton.

Remarks were then offered by Messrs. A. C. Goodell, Jr. ; M. G. Farmer and others. [Mr. F. spoke principally of the process of separating the fibre.]

Adjourned.

Monday, April 1, 1861.

Meeting this evening, H. M. Brooks, Vice President, in the Chair.

The usual business for the evening was suspended, in order to pay a tribute to the memory of our worthy and honored President, DANIEL APPLETON WHITE, who died at his residence in this city, on Saturday, March 30, 1861, at 2 P. M. He had been the President of the Institute from the organization in March 1848, to the time of his decease ; and for the eleven years previous had held the corresponding office

in the Essex Historical Society. He had been a liberal contributor to the funds, and also to the Library, having, at various times, presented some 4,500 volumes in the several departments of literature, the arts, and the sciences.

On motion of Mr. Goodell, it was voted, that a committee be appointed to report a series of resolutions in memory of our deceased President, at an adjournment of this meeting.

Before taking the questions, appropriate and suitable remarks were offered by Messrs. G. W. Briggs; Henry Wheatland; A. Crosby and A. C. Goodell, Jr.

The Chair appointed on this committee, Messrs. A. Huntington; A. Crosby, and A. C. Goodell, Jr.

The committee were further instructed to consider the propriety of appointing some person to prepare a memoir of our late President, for publication by the Institute.

Voted,—That when this meeting adjourn, it adjourn to the call of the committee.

Adjourned.

Monday, April 8, 1861.

An adjourned meeting was held this evening, to act upon the report of a committee appointed to prepare resolutions on the decease of their late President, the Hon. Daniel Appleton White,—and who were also authorized to invite some member to write a memoir of the departed. James Kimball, Esq., presided.

Hon. Asahel Huntington, chairman of the committee, previous to the reading of the Report, offered some very appropriate remarks, principally explanatory of some of the

leading facts stated in said report, with a view to point out how much Judge White had been identified with the educational, benevolent and other reformatory movements in this his adopted city, for nearly half a century and more than the life of one generation. When called upon to aid in any of the objects of the day he did not enquire what others had done, but acted independently, upon his own sense of right and duty in the premises.

Mr. H. also alluded to the reforms he was instrumental in making in the probate business of this County. This subject was appropriately referred to at the previous meeting by A. C. Goodell, Esq., the present Register of Probate.

Mr. H. also described two interviews he had with Judge White during his last sickness. The first was with a friend, who was connected with Dartmouth College, and the minute and graphic account he gave of the controversy between the Trustees of Dartmouth College and President Wheelock, which occurred some forty or fifty years since, was wonderful. The Judge was appointed Chairman of the commission to arrange the matters in dispute. The second interview was on the Sunday preceding his decease. He then expressed much interest in the news of the day, and the political condition of the country awakened the fires of his patriotism, and called out his ardent prayers for the Union of these States.

Mr. H. closed his interesting remarks by reading the accompanying report :

R E P O R T .

It having pleased Almighty God, in the dispensations of His righteous Providence, to remove from these scenes of his long and most useful life, our distinguished and venerated fellow citizen, the HONORABLE DANIEL APPLETON WHITE, it is especially fit, that the members of the Essex Institute should take such suitable and formal action, as to mark the event, and to express upon their records, in perpetual
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remembrance, their high appreciation of the character and services of their deceased President. He was largely and most honorably identified with all the institutions of this community for nearly half a century. His whole life here has been in close alliance with whatever was adapted to illustrate and adorn our annals, or to improve and elevate the character of our people. He was one of the Trustees of the Essex Historical Society, from 1823 to 1837—its President from 1837 to its union with the Essex County Natural History Society, in 1848, under the name of the Essex Institute, of which he has been President, since the date of its organization, March 8, 1848, to the time of his lamented decease. He was largely influential in the founding and organization of the Salem Lyceum, and delivered the Introductory Lecture at the opening of that institution, of which he was the first President, and held the office from 1830 to 1833. He was in the Board of Trust of the Salem Athenæum, from 1824 to 1840, and President, from 1838 to 1840. He has served most usefully as President and Trustee of the old Savings Bank of Salem and vicinity, one of the earliest institutions of the kind in the country; and also of the Salem Dispensary. He took an active part in the formation of the Harmony Grove Cemetery, and delivered the Discourse of Consecration on a most beautiful Sunday in June, 1840, towards the close of the day; and his remains were borne and deposited there, April 2, 1861, in all the contrasts of an apparently mid winter storm, the grounds and the trees being heavily laden with the fallen, and the falling snow. Of many of these institutions he was a liberal benefactor: of this, he has been a most munificent patron, and we desire here to acknowledge and record our deep sense of obligation for his large endowments, and his never failing thoughtfulness for this, and kindred institutions. He always dispensed of his means for all good objects, with a free and open hand and heart, and *giving* became the habit and happiness of his life.

He has been one of the distinguished and marked men of the Commonwealth, since his first entrance on public life,—more than fifty years ago. He has always been eminently a *trusted* man during his whole and honorable career. He had that as the basis of his character which commanded and justified full and entire confidence in all the relations and

duties of life. He was an eminent member of the Senate of Massachusetts for several years, during the war of 1812-1815. He was elected a member of the Congress of the United States from the Essex North District, in 1814, his residence being then in Newburyport, but did not take his seat under that election, having, in the meantime, been appointed to the office of Judge of Probate for this County, which he continued to hold with great honor and usefulness, for the period of nearly forty years. In this office, so intimately and largely connected with the interests of the entire community—bringing the incumbent into a near sympathy with the bereavements and afflictions of life—with the widow and the orphan,—how he bore himself, with what dignity, gentleness, learning, and impartiality, the whole County were the witnesses for more than a generation. He was the universally trusted magistrate—the pure and incorrupt Judge. In connection, and with the aid and co-operation of, that most excellent and model officer,—the late NATHANIEL LORD, JR., Esq., Register of Probate,—during almost the whole term of his office, both under appointment from Governor Strong, he reformed the probate practice of the Commonwealth to a large extent, and in this respect rendered a most useful as well as much needed service. His learned and excellent Treatise on Probate Jurisdiction and Practice, published a few years after of his entering on his office as Judge of Probate, inaugurated important changes in this department of the public service.

His heart and hand were always ready for every good word and work. How he moved about among us in a serene and beautiful old age, still intent on the liberal studies of his life, and still watching for any and all means of usefulness to his fellow men, beloved and venerated by the whole community, one of the last links connecting us with former generations; how deeply he was interested in all that concerned the character and dignity of his native and beloved Commonwealth; how he watched for the College, his ever honored Alma Mater, and for all Colleges and schools of good learning; how ardently he loved his country and her institutions of government, and with what a true and patriotic heart he grasped the Union and Constitution of his country in the last days of her imminent peril, we are all witnesses, and here and now desire to give and bear our united testimony.

We shall see that benignant face, that venerable form, no more in life. The places that knew him here in visible presence, will know him no more forever. But his works and the influence of his life and character remain to us—a rich legacy to the future generations. We desire to acknowledge the hand of God in his life,—so great, so good, so beneficent a life, so full of love and blessings to his generation,—as well as in his peaceful and happy death, surrounded by all the endearments and affections of kindred and home. We would here express our hearty sympathies with his family; and to preserve this brief and imperfect memorial of our honored President and friend, and of our most distinguished fellow-citizen,—

Resolved, That the Secretary enter the same at length on the records of the Institute, and transmit an attested copy thereof to the family of the deceased.

Resolved, That Rev. Geo. W. Briggs, D. D., be appointed to prepare a sketch of the life and character of Judge White, to be published in the transactions of the Institute, and thus to accomplish more fully and adequately its purpose in these proceedings.

David Roberts, Esq., in advocating a motion for the acceptance of the Report, said:—I trust there can be but one opinion as to the propriety of accepting the Report and passing the Resolves by the members of the Institute. At the request of the Secretary, permit me to ask you to pause a while longer, before taking the vote, that I may, if possible, add some circumstances, within my personal recollections of the late Judge White, not yet particularly stated, though perhaps already alluded to elsewhere.

The deceased, while in Salem, was ever a worshipper at the First Church. There, he was constant in attendance, when health permitted, both forenoon and afternoon of the Lord's day; in this respect, resembling, as I understand, the most exemplary conduct of the late Judge Shaw. Judge White was no holiday attendant upon public worship. He did not absent himself from afternoon service. Seldom was

his seat vacant ; but in storm or sunshine usually occupied ; and though generally present the whole day and himself among the oldest of all his fellow worshippers, yet, during prayer, his constant habit was to rise and continue standing.

His public spirit, too, was well known to all who have had occasion to call upon him for pecuniary aid. And when he gave, it was ever with a grace and liberality, which rendered the duty of calling upon him for such contributions not unpleasant.

Of his natural ability, high culture, love of letters and thorough scholarship, I forbear to speak. Other habits of his high character have been referred to and well illustrated here and elsewhere.

But of his opening Discourse for the Salem Lyceum, I have some recollections, which it may not be out of place to state on this occasion. That Discourse was delivered at the Church in Sewall street, Salem. The organization of the Lyceum had resulted from the proceedings of a public meeting, held at Topsfield Academy. The Resolves there proposed for discussion, I have seen, within a few years, in a hand-writing to me quite familiar. The object of the Topsfield meeting was to consider the propriety of establishing a Lyceum for the County, but resulted only in organizing one for Salem, with a code of laws, suited to the permanent existence of a Lycéum.

Judge White's Address was, at the time, deemed one of his ablest and best efforts. It was printed, and scholars, therefore, can judge for themselves of its intrinsic merits. Suffice it to say that all there considered it a fitting inauguration of the Lyceum system. If any departure has since been made in the original design ; it was doubtless for wise purposes and to improve the system.

But, in conclusion, let me say that a marked character has disappeared. For several years, Judge White had retired from the busy scenes of active and official life. And

now Death (that great leveller of all worldly and social distinctions) leaves only the grand example of the deceased for imitation. Though life be extinct, his character remains and will long be remembered; and this, with the record of his Judicial and public life, neither time nor death will erase or obliterate.

I need hardly to add that I sincerely concur in the Report and its recommendation, and trust they may be adopted without any dissent.

The Report was then unanimously adopted and the Institute adjourned.

Monday, April 15, 1861.

Meeting this evening, H. M. Brooks, Vice President, in the chair.

Records of preceding meeting read.

Donations since the meeting of the 18th of March were announced

To the Library—from Samuel A. Green of Boston; New England Historic Genealogical Society; Philadelphia Academy of Natural Science; John L. Sibley of Cambridge; Theodore Gill of Washington, D. C.; Canadian Institute at Toronto; Samuel Emery; Albert Ordway of Cambridge; D. A. White; City of Boston; Charles B. Richardson of New York; Nathaniel I. Bowditch of Brookline; G. M. Whipple; James A. Gillis; George B. Loring; N. J. Lord; Mrs. L. P. Johnson; Boston Society of Natural History; Peabody Institute at South Danvers; John L. Russell.

To the Cabinets—from Henry Felt Simon; John Burchstead of Hamilton; L. L. A. Very; William J. Chever; Nathaniel Ingersoll.

Letters were read from W. O. White of Keene, N. H.; A. Huntington.

A committee was appointed to report a list of officers to be acted on at the Annual Meeting.

Messrs. James Kimball, George D. Phippen and Charles H. Norris were appointed on said committee.

Adjourned.

Monday, May 8, 1861.

Annual meeting this day at 3, P. M., James Upton, Vice President, in the chair.

Records of preceding meeting read.

Donations since the 15th ult. were announced from American Academy of Arts and Science; Minnesota Historical Society; J. L. Russell.

Letters were read from J. L. Russell; Minnesota Historical Society; Trustees of Boston Public Library; New England Historic-Genealogical Society; Peabody Institute, South Danvers; Henry W. Foote; J. C. Howard.

Report of the Treasurer was read and referred to the Finance Committee.

Reports of the Secretary and of the Curators, were read, accepted and ordered to be placed upon file.

From these reports we learn that eight of the resident members and four of the correspondents have died during the year; this brief notice, a deserving tribute to their memory, is appended:—

1st.—WILLIAM WILLIAMS, first son and seventh child of Samuel W. and Emily (Williams,) Williams, born at Wethersfield, Conn., Oct. 2, 1797—graduate of Yale in the class of 1816—ordained at Salem, July 5, 1821, as pastor of the

Branch Presbyterian Church, which took the name of Howard Street, in 1827. He remained in this connection until Feb. 17, 1832, when he resigned and was afterwards in November of that year installed as the first Pastor of the Crombie Street Church—this last position he retained until his resignation in 1838. He was subsequently settled for a short time over a church in Exeter, N. H. In a few years returned to Salem, studied medicine and practiced the profession until his decease. He married his cousin, Mary Parsons, daughter of Rev. David and Harriet (Williams) Parsons, of Amherst, on the 18th of Sept. 1821. He died at Salem, after a short illness, June 17, 1860. He was widely known as a man of uncommon ability as a writer and a speaker.

2d.—CHARLES JAMES WHIPPLE, son of Henry and Harriet (King) Whipple, born at Salem, Sept. 9, 1827, graduate of our High School and a good scholar. His abilities and attention to business commanded for him a prominent situation in one of the principal Boston Banks. He died July 6, 1860.

3d.—THOMAS F. ODELL, son of James and Sarah (Very) Odell, born at Salem, Oct. 9, 1792—died July 7, 1860. He has been connected with us for the past few years and has always expressed a great interest in our success.

4th.—BARNARD WEST GARDNER, son of Richard and Abigail P. (West) Gardner, born at Gloucester, July 3, 1842; died at Salem, Nov. 6, 1860. A young man of great promise, and of an amiable and very pleasing disposition.

5th.—LARKIN WOODBERRY, son of Asa and Anna (Woodberry) Woodberry, native of Beverly, resided many years in Manchester, and died at Salem, Nov. 8, 1860, aet. 65. On his removal from Manchester to Salem, a few years since, he connected himself with the Institute. His kind and polite

attention to the members and their friends during one of our earlier field meetings in Manchester, will be long remembered with gratitude.

6th.—ALONZO LEWIS, son of Zachariah and Mary (Hudson) Lewis, born in Lynn, Aug. 28, 1794, educated at the schools in Lynn, a teacher by profession, well known as the historian of Lynn, died in the place of his nativity, Jan. 21, 1861. A memoir of him read by Mr. A. C. Goodell, at an evening meeting, has been printed in the Historical Collections, vol. 3, page 34.

7th.—JOHN SHAW SIBLEY, son of Joseph and Dorcas (Abbot) Sibley, born at Salem, June 15, 1815, died on Thursday, Feb. 21, 1861.

8th.—DANIEL APPLETON WHITE, our respected President. He was son of John and Elizabeth (Haynes) White, and was born at Methuen on the 7th of June, 1776; a graduate of Harvard in 1797, and tutor in the Latin department from 1799 to 1803. He resided for many years at Newburyport, and came to Salem in 1817, where he has since resided; died on Saturday, 29th March, 1861—an appropriate notice has been taken at a meeting held during the week after his decease, and the Rev. Dr. Briggs having consented to prepare a memoir for publication in the doings of the society, a more extended notice is not necessary.

Of the corresponding members we may notice the death of four: three of them were natives of Salem and spent their early years in our schools, but pursuits in after life called them elsewhere.

1st.—PROF. JOSIAH GIBBS, LL.D., son of Henry and Mercy (Prescott) Gibbs, born at Salem, April 30, 1790, a graduate of Yale in the class of 1809; Tutor in Yale from
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1811 to 1815 ; then resided for several years at Andover, Mass., devoted to the study of Hebrew and the literature of the Bible. In 1824 he was invited to take charge of the professorship of sacred literature in the Theological department of Yale College ; the duties of this he continued to discharge until failing health compelled him to retire. He died at his residence in New Haven, March 25, 1861. He held a high rank among American scholars, not only for learning and research in his special departments, but for his thorough acquaintance with general philology. He has been accustomed to devote a portion of his vacation each year for several years past, in this city, revisiting the scenes of his youth and meeting with the few of his old acquaintances that remain.

2d.—NATHANIEL I. BOWDITCH, of Boston, son of Hon. Nathaniel and Mary (Ingersoll) Bowditch, born at Salem, Jan'y 17, 1805, graduated at Harvard in 1822, died at Brookline, April 16, 1861, after a long and painful illness. He is well known as a diligent antiquary, and the history and titles of the estates in Boston formed his principal study.

3d.—JOHN B. WILLIAMS, son of Israel and Lydia (Waite) Williams, was born at Salem, Sept. 28, 1810 ; died at Levuka, Ovalau, Fejee Islands, June 10, 1860, where he had resided for many years, the United States Consul for those Islands.

4th.—SAMUEL WALKER, of Roxbury, born at Cardington, England, Sept. 9, 1793, and has long resided in the vicinity of Boston. He has been one of the most active and intelligent members and officers of the Massachusetts Horticultural Society, and for some years its President. He died Dec. 11, 1860.

PUBLICATIONS.—Vol. 11, Part 2, of Proceedings was issued in September ; also six numbers of the Historical Collections,

containing about 50 pages each, at stated intervals during the year.

MEETINGS.—During the past summer five field meetings have been held, in Topsfield, Groveland, West Gloucester, Hamilton Ponds, and Ipswich; and ten evening meetings at the rooms, during the winter and spring.

To the **LIBRARY** have been added 1104 bound volumes and about 2000 pamphlets and serials, not including many incomplete files of newspapers, &c., with few exceptions, donations; and received from thirty four societies, or departments of States, and National governments, and ninety individuals. The principal donors were W. D. Pickman, Esq., who presented nearly 400 volumes of valuable books, besides many serials and pamphlets, and our late President, Hon. D. A. White, on the day preceding his decease, sent to the library some fifty volumes of choice classical works formerly owned by the late Dr. Francis Vergnies, of Newburyport, who died in that city some thirty years since, at the advanced age of 80 years,—a gentleman of fine classical attainments. In this connection it may not be inappropriate to state that the late Judge White has bequeathed his valuable library to the Institute, with some reservations to his family.

To the **CABINETS**, many valuable and interesting additions have been received to the various departments from 119 contributors. Of these we may mention several general collections made by our sea-faring friends and residents in other places. Among whom are Capt. Geo. Harrington, Rio Grande, Brazil; Capt. Charles Millett, 2d, Arabia and vicinity; Wm. G. Webb, Zanzibar; Capt. Francis R. Webb, during passage to and from Zanzibar; Capt. L. Peirson Ward, from Straits of Malacca; Capt. Wm. Lefavor, from Para; Capt. Wm. J. Chever, Port Louis, Mauritius, Manilla, etc.; Prof. M. Miles, Lansing, Mich.; James Bartlett

of Wenham ; B. F. Morrison of Nantucket ; M. Carimundo Martins of Bissau, W. Coast of Africa ; Capt. James B. King, etc.

JOHN L. RUSSELL in his Report on the Herbarium, states that the removal of the Cabinets of the Essex Institute to Plummer Hall, rendered it necessary to arrange anew the specimens belonging to each department. He says :

“ The western ante-room of the lower floor, having been fitted up for the Herbarium and Microscope, and for the consultation of choice books, the part assigned to plant specimens has received what attention I could command, and has been put in working order. One entire side has received the folio sheets of dried plants, arranged as follows :—

Bundles of Azorean, Brazilian, Australian, West Indian, East Indian, Syrian Plants, gifts of various members ; some of these are very choice.

A series of Swiss alpine phenogams and cryptogams.

The general Herbarium of the Institute, containing choice specimens from the illustrious OAKES, Western species from Lapham ; Rhode Island species from Olney and others. Many fine specimens obtained in this vicinity at field meetings, beautiful specimens from Tracy ; some of Nichols', Osgood's, &c., &c.

Incorporated and in their place are European species from vicinity of Bonn, sent me by the celebrated Caspary of the University there.

Several of the lichens, mosses and ferns are from remote parts of New England, and selected from specimens given me by Frost, or gathered by myself in New Hampshire and Vermont, or at the White Mountains.

Mt. Katahdin, in Maine, has furnished specimens by the gift of Rev. A. P. Chute and Rev. Jno. Blake.

These are all arranged on the system of Dr. John Lindley, as exhibited in his “ Vegetable Kingdom,” (London, 1846.) In the main they agree with Dr. Asa Gray's arrangement in his *Flora of North American Plants*, &c.

In drawers beneath the cases are fine specimens of rock lichens from the cullings of Oakes, in the White Mountains, and of myself in the Green Mountains, and on the lower range near Brattleboro, Vt.

The larger slabs with patches of crustaceous lichens were from the summit of Mt. Washington, and were given me by the distinguished Tuckerman, who had the OAKESIAN lichens in his possession. All that Oakes gathered are marked with the letter O on the back.

A vast number of seeds have been collected and are enclosed in paper capsules and properly marked: it is to be hoped that all new seeds will be added from time to time. The larger seed vessels are very valuable, and are respectable for numbers.

The same should be said of sections of woods, and of resins, gums, fibres and barks used in the arts or medicine.

In conclusion, I would simply recommend that the present order be strictly observed, and if on consulting the catalogue in MSS., species should be found wanting, they be added to the herbarium, especially if procurable in Essex County.

In certain genera as in the *Asters* and *Solidago*, the suites are quite full and rich, and furnish material for more extensive and future study.

The TREASURER presents the following statement of the financial condition, for the year ending May, 1861 :

GENERAL ACCOUNT.

Debits.

Athenæum Rent, 1-2 of fuel, attendance, &c.,	\$457.50	
Printing 6.00, Gas Light Company 6.48,	12.48	
Express and Postages,	26.42	
Sundries,	19.01	
Historical Account,	116.66	
Natural History and Horticulture,	58.09	
Balance,	19.85	
		\$710.01

Credits.

Balance of the account of 1860,	\$ 84.64	
Assessments,	584.00	
Webster Bank,	35.00	
Sundries,	6.37	
		\$710.01

HISTORICAL ACCOUNT.

Debits.

Books for the Library,	46.00	
Binding,	122.66	
	<hr/>	\$168.66

Credits.

Naumkeag Bank (Dividends,)	12.00	
Michigan Central R. R. (Coupons,)	40.00	
General Account,	116.66	
	<hr/>	\$168.66

NATURAL HISTORY AND HORTICULTURE ACCOUNT.

Debits.

Books for Library,	18.50	
Bottles, Alcohol, and other Preservatives,	39.71	
Taxidermy,	57.88	
	<hr/>	\$116.09

Credits.

Dividends Lowell Bleachery,	40.00	
" P. S. and P. Railroad,	18.00	
General Account,	58.09	
	<hr/>	\$116.09

PUBLICATIONS.

Debits.

For Engraving Wood Cut,	9.25	
Printing,	545.95	
Balance,	35.76	
	<hr/>	\$590.96

Credits.

Sales of Publications,	287.21	
Ladies' Fair,	303.75	
	<hr/>	\$590.96

The COMMITTEE appointed at a meeting, March 31, 1857, to superintend the construction of the necessary Cabinets, &c., for the deposit and exhibition of all articles belonging to the

Institute, in Plummer Hall, made a statement of their doings, containing an accurate account of the receipts and expenditures for this purpose,—the same having been done without recourse to the ordinary income of the Society :—

Credits,

By Subscription in 1857, from 74 individuals,	\$2,587.50
Net proceeds from Ladies' Fair, September, 1860,	2,043.62
Sundries,	12.00
	\$4,643.12

Debits.

Cabinets, Removal, &c.,	\$3,632.12
Interest on Loans,	77.25
To the Publication account,	303.75
Deposit in Salem Savings Bank,	630.00
	\$4,648.12

The sincere thanks of the Institute are due to those generous individuals who contributed the first named sum, and also to the Ladies by whose untiring exertions, the second amount has been placed at its disposal. The Hon. R. S. Rogers, the Chairman of the committee, is entitled to our gratitude for his assiduity and zeal in aid of this object.

The following Officers were elected for the year ensuing :—

President—ASAHEL HUNTINGTON.

Vice Presidents—Of *Natural History*, Samuel P. Fowler of Danvers; of *Horticulture*, James Upton; of *History*, Henry M. Brooks.

Secretary and Treasurer—Henry Wheatland.

Librarian—John H. Stone.

Cabinet Keeper—Richard H. Wheatland.

Finance Committee—John C. Lee, Richard S. Rogers, Henry M. Brooks, George D. Phippen, James Chamberlain.

Library Committee—Joseph G. Waters, Alpheus Crosby, David Roberts.

Publication Committee—A. C. Goodell, jr., Henry Wheatland, George D. Phippen, Ira J. Patch, John H. Stone, George M. Whipple.

Curators of Natural History—Botany—C. M. Tracy of Lynn; *Comparative Anatomy*, Henry Wheatland; *Mammalogy*, F. Winsor; *Ornithology*, F. W. Putnam; *Herpetology and Ichthyology*, Richard H. Wheatland; *Articulata and Radiata*, Caleb Cooke; *Mollusca and Paleontology*, Henry F. King; *Mineralogy*, David M. Balch; *Geology*, Henry F. Shepard.

Curators of History—Ethnology—W. S. Messervy, M. A. Stickney, Francis H. Lee. *Manuscripts*—Henry M. Brooks, Ira J. Patch, Lincoln R. Stone, G. L. Streeter, S. B. Buttrick. *Fine Arts*—Francis Peabody, J. G. Waters.

Curators of Horticulture. Fruits and Vegetables—James Upton, J. M. Ives, J. Fiske Allen, J. S. Cabot, John Bertram, George B. Loring, Richard S. Rogers, Charles F. Putnam. *Flowers*—Francis Putnam, William Mack, Benj. A. West, Charles H. Norris, George D. Glover.

Voted—That a committee be appointed to consider the expediency of holding field meetings the ensuing summer, and if concluding in the affirmative, to make all necessary arrangements for the same. Messrs. Allen W. Dodge of Hamilton, C. M. Tracy of Lynn, B. C. Putnam of Wenham, S. P. Fowler of Danvers, John M. Ives, Charles H. Norris and R. H. Wheatland of Salem, were appointed on said Committee.

Voted,—That a Committee be appointed to arrange for the evening meetings during the ensuing winter, and also

to consider the propriety of having a course of lectures on subjects appertaining to the objects of the Institute, and if concluding in the affirmative, to make all needful arrangements for the same. Messrs. A. C. Goodell, Jr., C. C. Beaman, Jacob Batchelder, G. D. Phippen, C. H. Norris, James Kimball, F. W. Putnam were appointed on this committee.

Adjourned.

Thursday, June 18, 1861.

FIELD MEETING AT EAST BOXFORD.—This was the first of these gatherings for the present season, and was attended by a company whose numbers and apparent interest gave ground of encouragement as to the future efforts to be made in continuing these meetings. The principal party, from the seaboard towns, obtained passage by an extra train over the Essex Railroad as far as Danvers, when the Georgetown road was resorted to instead, and another short trip ended at the old and truly rural village of East Boxford. On halting at the station, rather more than a mile from the church, a goodly number of the hospitable farmers, with characteristic spirit, were present with teams to convey the party to the rendezvous, a service speedily and pleasantly performed. Near this station is the residence of the late Gen. Lowe, who was lately buried at this place with military honors.

Up to the year 1685, it appears that Boxford was a suburb of Rowley and only known as Rowley Village. In that year, however, it acquired a name and identity of its own, which it has since preserved. There is much here to entertain and instruct the rambler, more than would at first appear. The honest and thrifty people keep in activity most of the time, several saw-mills, a box and peg factory, and other manufacturing establishments; and, we are glad to

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observe, pay a commendable care to the good condition of the cemeteries of the town. In these some of the antiquaries of the company spent a share of time with much satisfaction. Among the antiquities of this village, was noticed the old parsonage. This was the residence of Rev. Elizur Holyoke, third minister in this place. This gentleman was a relative of the venerable Dr. Holyoke of Salem, was born in Boston, May 11, 1731, and graduated at Harvard in 1750. In 1759 he became pastor of the church at East Boxford and so continued till 1806, when he died. His daughter, now 87 years of age, still lives on the old homestead.

The company dividing, as usual, a party went to "Crooked Pond;" others to the woods; some to "Bald Hill;" another portion to a sunken meadow near the house of B. S. Barnes; and yet another to the old quarry. Some, in wagons ventured even further, and sought out "Carey's Ridge," finding along the rustic ways, enough of novelty and interest to compensate amply any trouble arising on account of distance.

Not long after noon, the whole company having re-assembled in the vestry of the Congregational Church, the afternoon meeting came to order at the call of Hon. Allen W. Dodge of Hamilton. After the reading of the Records by the Secretary, the following letters and donations were announced:—

Donations since the annual meeting:—

To the Library—from Connecticut Historical Society; New Jersey Historical Society; Samuel H. Congar of Newark, N. J.; American Antiquarian Society; Samuel Emery; William Mack; J. L. Sibley of Cambridge; Chas. F. Barnard of Boston; Philadelphia Academy of Natural Science; Canadian Institute at Toronto; Jonathan Perley, Jr.; Jeremiah Colburn of Boston; C. B. Richardson of New York;

Boston Society of Natural History ; Smithsonian Institution ; L. R. Stone ; C. W. Swasey.

To the Cabinets—from Nathaniel Ingersoll ; James Bartlett of Wenham ; H. E. Story ; Mrs. H. M. Colcord of South Danvers ; James R. Phelps ; S. S. Mackenzie of Topsfield.

Letters were read from the Trustees of Boston Public Library ; George R. Noyes ; Robert C. Winthrop of Boston ; Corporation of Harvard College ; G. A. Ward of New York ; Tennessee State Library ; Andover Theological Seminary ; Josiah Quincy of Boston ; Rhode Island Historical Society ; American Antiquarian Society ; Massachusetts Historical Society ; J. Coburn of Boston ; Chas. Hutchins of Boston ; F. Bacheller of Lynn ; J. H. Hickcox of Albany ; W. O. White of Keene, N. H. ; Smithsonian Institution ; F. Winsor ; S. S. Mackenzie of Topsfield ; C. M. Tracy of Lynn ; Wm. Merritt ; Wm. S. Coggin of Topsfield.

S. P. FOWLER, of Danvers, remarked that some of our fruit trees exhibited a very unusual developement this season in their buds. This was particularly true of the Cherry, whose flower buds, as a general rule, had wholly failed, or become abortive. Whether this, and similar injuries, have been caused by late frosts, or by the premature warmth of part of the spring weather, or by some other cause, was a question of both grave and curious import. He moved that a committee be raised "to ascertain, if possible, the cause of the injury sustained by our fruit trees the past season ; to note their present appearance and the extent of their injury, the best mode of restoring such injured trees, and their appearance next autumn ; together with such facts in relation to the same as may come under their observation, and report at the next Annual Meeting in May, 1862." The motion being adopted, Messrs. C. M. Tracy, S. P. Fowler, James Upton, George D. Phippen, and J. M. Ives, were appointed on the Committee.

C. M. TRACY, of Lynn, exhibited some of the specimens of plants collected by him and others during the ramble. He noticed at some length, the influence of submersion in water upon the developement of leaves ; the effect, in general, being to hinder the production of parenchyma and cause the leaf to remain either deeply serrated and lobed, or else cut into teeth like a comb, and reduced to almost a mere skeleton. In illustration, such instances as the Water Ranunculus, the Mermaid Weed, and the Featherfoil, were cited. He also drew attention to the Umbelliferous Family of Plants, some members of which are poisonous, while others have aromatic and useful qualities. It is important to distinguish these readily, and one of the safest and simplest rules is, to reject all that grow in moist grounds. This is, in general a good rule, but there are a few important exceptions ; as for instance, the Poison Hemlock, wholly found on high land, yet very deadly ; and the Angelica, a native of the meadows, though perfectly innocent.

DR. GEORGE OSGOOD, of Danvers, enumerated the results of his botanical search and commented thereon. He cited Lady's Slipper, (*Cypripedium Acaule*) Cucumber Root, (*Medeola*) Huntsman's Cup, (*Sarracenia*) Wild Cranesbill (*Geranium*) and many others.

F. W. PUTNAM, of Salem, spoke of a few species of insects taken along the road from the station, and further, by request of the chair, as to the locomotive machinery of fishes. Though fish have nothing more than fins and tails for propulsion, yet these are used, so far as they go, precisely in imitation of the limbs of the higher animals. The mode of doing this varies ; some use the fin like an oar in sculling a boat, striking square against the water ; others, as the Balistes and Pipe-fish give the vertical fins a wavy motion, simulating the action of a screw propeller. Still a third class, living close on the bottom, use their pectoral fins

for jumping, rather than swimming, and make their way by darts. Others as the Skate, fly through the water by an up and down motion of the pectoral fin. There are fishes peculiar to countries subject to drought, which, provided with reservoirs of water in the head by which the gills are kept moist and respiration preserved, will leave a parched district and travel upon their rigid fins to one more plentifully watered. Mr. P. made many statements as to Turtles, exhibiting specimens. The age of these creatures is always matter of curiosity. The external shell of a Turtle is made up of scales, and these form annual rings of growth at their edges. By counting these the age of the creature may be nearly ascertained.

SANBORN TENNEY, of Newton, Lecturer on Geology at the Normal School in Salem, being invited by the Chair, expressed high gratification at the exercises he had witnessed. He had found the predominant rock in Boxford to be gneiss, passing into mica slate. He had visited the old Lime Quarry and had specimens of the crystalized Carbonate of Lime from thence ; he had also been to the Sunken Meadow, so called. This, said he, is evidently a pond grown up, or grown over. The vegetation from the margin has overhung and gradually overspread the water below, till at last it has united in the middle and hidden it with a covering which might sustain the foot. Probably the water may be forty feet deep below, and the sheet of peat-moss and other solid matter is too weak to bear the weight of the twenty-five feet of gravel that have been piled on it for the railroad, and which have all gone to the bottom. A similar process of growing over has probably, in earlier ages, formed first our peat meadows, then these have changed into bituminous and then into anthracite coal, giving us the vast deposits from which we now draw our fuel.

Rev. Mr. COGGIN of Boxford, expressed his pleasure at

listening to what had been offered. He further described a noble Elm standing near the depot, not far from the shoe manufactory of Mr. Isaac Hale. This tree is the pride of the town and cannot be less than ninety years old. It measures thirteen feet and two inches round the butt, and, several feet higher, almost twelve feet round the trunk. The circumference of its shade is not far from three hundred feet, as the spreading branches reach some fifty feet from the center. An elm stands in North Andover which is of somewhat larger dimensions; but the Boxford tree is difficult to excel for symmetrical and graceful elegance.

S. P. FOWLER, of Danvers, gave an account of the jaunt to "Carey's Ridge." This was found to be a singular formation, extending, with few interruptions, from Georgetown to Gravelly Brook in Topsfield; some seven or eight miles. In many places, the steep sides go down with a sheer slope of a hundred feet, more or less, to the plain below. Remarkable pines may be seen here; one such was found to be twelve feet around the butt, the trunk being ten feet in diameter for some forty or fifty feet. Probably there is no larger pine in the county.

Mr. F. had had an opportunity of witnessing the curious "decoy" of the mother partridge to draw attention away from her young. In this case, the trick had been unavailing, as he had sought out the young bird and captured it.

At the close of his remarks Mr. Fowler offered a vote of thanks to the Proprietors of the Congregational Church, for the use of their Vestry; to the various gentlemen who had kindly pointed out the numerous objects of interest; and the citizens generally for their kind attentions to the members of the Institute this day. The vote was adopted and the meeting adjourned. It was an extremely successful one, and attended by the towns-people in considerable numbers.

Wednesday, June 26, 1861.

FIELD MEETING AT LYNNFIELD.—The village of South Lynnfield or “Lynnfield Hotel,” was chosen as the location of the second Field Meeting this season. One had been held here before, in 1848. Rather more than one hundred and twenty persons took the train from Salem and Danvers, arriving *via* South Reading Branch Railroad at about half past 10, A.M.

It is perhaps a piece of history familiar to all, that this town was part of old Lynn till July 3, 1782; when it became a “district,” and remained such till Feb. 28, 1814, when it was made a town. This village is on land very nearly level, for the most part, but not far off in the woods, strong and bold ledgy eminences rise, from the top of which the rambler can here and there catch magnificent views of the surrounding country.

Several parties for exploration were here formed, as usual. One of these passed on as far as the centre village, and inspected the old serpentine quarry that is yet open there. Others strolled along the margin of Humphrey’s Pond whose noble sheet of water is the just pride of this locality. It bears its name in honor of John Humphrey, of Dorchester, England, a lawyer and man of character, to whom it was granted, with some five hundred acres of land, May 6, 1635. He was a son-in-law of Thomas, Earl of Lincoln, and was chosen Deputy Governor in 1630, and Assistant in 1632. In this pond lies a lovely island of about two acres, covered with pine trees, and such growth, for the most part, encircles its margin.

A third division were guided by Gen. Josiah Newhall, through a delightful woodpath to a disused, but picturesque-looking granite quarry; and thence to one of the tall eminences spoken of, called Robin Rock. From here, a dense,

expanding mass of forest and foliage seems to swell and undulate about one's feet, while far away, on the borders of the picture, the white buildings of South Reading, North Reading, and Wilmington, seem timidly to hover, with the highlands of Lynn in the south, and Bunker Hill with its tall shaft, standing like a beacon to guide the eye to the capital.

After the gathering in of the strollers, the meeting was organized in the Congregational Church, Rev. E. B. Willson of Salem, being called to the chair.

The record was read and the Secretary announced donations as follows:—

To the Library—from Dorchester Antiquarian and Historical Society; Samuel Blake of Dorchester; New York Mercantile Library Association; David Perkins; Solomon Lincoln of Boston.

To the Cabinets—from William O. Potter; Abraham Very; Mrs. H. M. Colcord of South Danvers; S. S. Mackenzie of Topsfield; Addison Flint of South Reading; S. Barden of Marblehead.

Letters were read from Dorchester Antiquarian and Historical Society; J. H. Hickcox of Albany; H. R. Stiles of Woodbridge, N. J.; C. Hutchins of Boston.

Mr. Willson, on taking the chair, professed himself to be no proficient in those natural powers or acquired habits by which the scientific activity of the day was stimulated and directed. He confessed an ignorance and a lack of enthusiasm in these things, unfitting him to be a meet companion of those who revelled in these deep communings with nature. He had to-day been among the rocks, but he heard no oracle; among the flowers, but they spoke no word to him. His pulses would but poorly answer to the leapings of the wild

streamlet, and his sluggish thought caught no new inspiration from the hum of the insect's wing. Having, then, no ability to add to the knowledge or happiness of others by his own observations, he could but thank his friends that they had kindly given him a place of quietude, where his privilege would be more to hear than to impart information.

Rev. S. BARDEN, of Marblehead, spoke a few minutes on geological matters. He had been to the Serpentine Ledge at the Center, but with small success. The serpentine here is not ornamental in its appearance, not like the precious serpentine of Newbury. It has a dull grey color and contains a large share of magnesia. Formerly it was quarried for the manufacture of Epsom Salts. An excavation is seen in the northerly part of the town, where some deluded people at one time dug for copper. A considerable sum was spent, but nothing found save a very little copper and micaceous oxide of iron.

F. W. PUTNAM, of Salem, having come late, was provided with very little on which to speak. A large mud turtle from a pond near by, was pronounced to be a specimen of the lower order of turtles. These are very voracious, and will even attack a dog when in the water. A rare turtle (*Emys Blandingii*) had been lately given to the Institute by Mr. Addison Flint of North Reading. It was found in that town and is wholly terrestrial in its habits; living in the woods, but never in the water. A hinge across the under shell allows the creature to close the front part of his covering and thus protect the head and forefeet; not like the Box Turtle which can close up the whole. According to Agassiz' new classification, this is the only true *Emys* found in North America. One or two snakes and beetles were also spoken of.

Some remarks on the habits of the Gall Fly and Aphid
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being here made, led to a spirited discussion between Messrs. G. D. PHIPPEN, C. M. TRACY, T. ROPES, F. W. PUTNAM, and A. W. DODGE, in which many interesting observations were given as to the points in question. Mr. Putnam explained somewhat, the peculiar propagation of the aphid, showing that while several generations appeared in a single summer, only the last consisted of both sexes, and only these females laid eggs, the other generations being entirely viviparous. The classification of these insects, he said, was very tedious, almost every plant having its own peculiar sort. Mr. Phippen had watched the red Aphid of the Asters and Golden Rods, had noticed the production of living young and their distribution along the twig by this means; also the singular movements which now and then pervade a whole community, every individual jerking at the same instant and then remaining still. Mr. Tracy had noticed the curious fact, that in these gatherings of aphides, the head of the insect is invariably turned *from* the growing point of the twig, placing them as it were, head downward. If we can find no other cause for this, it may be that, as the insect seldom leaves its place, and multiplies backwardly, this position is chosen to bring the young upon the softer and tenderer parts of the bark, where, being weaker, they can feed more easily.

JOHN M. IVES, of Salem, continued these observations by speaking of the Currant Aphid. Its ravages might, he thought, be abridged by strewing air slacked lime among the currant bushes. He further alluded to the condition of the fruit trees this year, concluding that the injury was due to the remarkable alternations of heat and cold which we have had, more than to any direct agency of frost upon the buds.

In February the frost was so far gone that strawberry beds were dug over, and in March the mercury on the 3d stood

75° in the shade and 85° in the sun. But on the 7th of March it was only 10° above 0 through the day, and on the 18th, only 4° above at sunrise. In his opinion the sudden freezing and thawing of the sap-vessels had done the injury. The fluids in plants are always in motion, according to Lindley; and Biot has, in fact, shown means for measuring the rate of motion in the sap at all seasons.

A. W. DODGE, of Hamilton, dissented somewhat from the views of Mr. Ives and favored the idea that the sap descended from the branches toward the root in winter.

C. M. TRACY, of Lynn, explained the prevalent theory of botanists, as to the course of vegetable fluids. We use the term sap rather loosely. The water and chemical solutions taken up by the roots form a very crude fluid which rises in new wood as far as the leaves, and this is one sort of sap. The sweet sap of the Maple, and the equally sweet and viscid sap of the Hickory, with the "sliver" of the Pine and other trees, is altogether another thing, elaborated by the leaves and distributed through the plant to produce its growth and increase. In winter there are no leaves and none of this sap is formed, the store of the preceding season moves slowly over the plant, however, and toward spring very rapidly. These two fluids are indifferently called sap, and this leads to misunderstanding.

Mr. DODGE continued. It was certain that the elements were taken up by the roots which nourished the growth, for the action of manures could not be otherwise explained, and hence the roots are as much nourishing organs as the leaves; indeed they are indispensable, since by them only could the plant communicate with the soil.

Mr. Tracy replied that many plants habitually flourished and matured seed with no connection with the soil. This

large class of epiphytic plants were a living demonstration of the truth that plant-growth, in the abstract, did not require the earth for its maintenance.

Gen. JOSIAH NEWHALL, of Lynnfield, gave some interesting facts in relation to the village. It was one hundred and thirty feet above the streets of Salem, and thirty feet higher than the neighboring pond. Salem might be supplied with water to her highest attic from the clear fountain-head of Humfrey's Pond. Yet more than this might be done. Another pond lay a mile distant and within the town limits, which was some eighty feet higher than the place of meeting. Hence no house in the village need be without good water; nay, every one could have a fountain playing in its yard. Taken in connection with the admitted salubrity of the place, this fact added to the many inducements for the erection of residences here by the wealthy, who come out from the city in quest of quiet retired enjoyment.

Rev. Messrs. WHITCOMB, of Lynnfield, BARDEN, of Marblehead, and W. B. HAYDEN, of Portland, severally offered pleasant and seasonable remarks, after which, a vote of thanks was passed to the Proprietors of the Church for its use for the meeting, to Gen. Newhall and Mr. Moulton, for their service as guides, and to other citizens, for their kindness during the day.

The meeting then adjourned.

Friday, July 12, 1861.

FIELD MEETING AT KETTLE COVE, GLOUCESTER. This, the third of the series this season, was attended by a large and agreeable company, who seemed to forget, in the enjoy-

ment of the very fine day, the disagreeable fact of two previous postponements. Although the inlet known as "Kettle Cove" is included in Manchester, yet as the entire operations of the day were conducted on the Gloucester side, the place of meeting is designated accordingly. The train having deposited its large freight of passengers at the crossing of a rustic wood-road, they speedily betook themselves to the pleasures of a ramble along its winding route till it finally brought them out at the spot of their destination.

Along the shore, in this vicinity, may be traced what is understood to be the original road from Salem to Gloucester. It shows no marks of recent travel, but remains almost wholly clear of trees, and only overgrown with grass. It may with little difficulty be traced from here to "Fresh Water Cove," several miles away. Very near the place of meeting, at the intersection of the road over which the party came and that leading to Gloucester, was formerly a public house known as the "Magnolia House," but not now kept open. The village of "Kettle Cove," properly speaking, is a little way to the west, in the town of Manchester, and the name seems to have fastened itself with great facility upon adjacent objects, a small island in the Cove bearing also the name of "Kettle Island." Most such names, in New England, at least, are thought to have a personal derivation; and in this case, a family of the name of Kettle are known to have lived near by before 1650. Probably others of the same name preceded them, as the island was so called in 1634.

A stroll along the shore in this vicinity brings to view many curious, as well as pleasant things. Just on the east of Kettle Cove and only separated from it by a narrow headland, is found a smaller indentation called Knowlton's Cove. Here, by the agency of some peculiar currents, or singular

cleavage in the neighboring rock, or perhaps many other causes combining, the thousands of bowlders on the beach are rolled and worn by the surf till every one, almost, is rounded and smooth as an egg. Indeed, so white is the granite from which they are made and so remarkable their form and the manner in which they lie clustered together in the little nook, that an observer, looking for the first time from the ledge above, might easily fancy that he saw the nest of some monstrous bird, filled with eggs fit to rival those of the Roc of Sinbad. Many of these have been carried away for curiosities.

Passing on over the stern granite shore to the eastward, a large rock a short distance from the shore, and connected with it by a sunken reef, bears the name of "Norman's Woe." A tradition exists that a man named Norman was shipwrecked here; but history has no further confirmation of it, than that Richard Norman, some time before 1682, sailed on a voyage and never returned. Beyond the Woe, the visitor looks with admiration down an immense chasm or crack, caused by the disintegration and removal of a huge greenstone dyke, which has thus left in the granite what is termed "Rafe's Cleft." It is one of the most remarkable of the rents, or "purgatories" which abound on our shores and are, no doubt, due to the same cause.

Some of the company explored the above spots, and others resorted to the Magnolia Swamp, a mile or so away, the praises of which have been often dwelt upon. Others, in small parties, sought out whatever else in the vicinity proved to possess interest and attractiveness. About 2, P.M., the whole assembled in a shady bit of woods near by, and the formal meeting was opened, Mr. S. P. Fowler of Danvers, Vice President, in the Chair.

The Records of the preceding meeting read, and donations were announced from the following :

To the Library—from Jeremiah Colburn of Boston ; F. Bacheller of Lynn ; Charles F. Barnard of Boston ; David Perkins ; Henry F. Shepard ; Mrs. B. Wheatland ; C. Foote ; George C. Chase ; Philadelphia Academy of Natural Science ; Maryland Historical Society ; C. B. Richardson of New York ; Mrs. E. Barnard.

To the Cabinets—from Joseph G. Waters ; Mark Lowd ; James M. Estes ; James R. Phelps ; G. J. P. Floyd of Topsfield ; George H. Devereux ; John G. Felt ; R. H. Wheatland ; C. L. Peirson.

Letters read from Maine Historical Society ; Corporation of Dartmouth College ; Trustees of Newburyport Public Library ; C. J. P. Floyd of Topsfield ; J. Colburn of Boston ; J. H. Hickcox of Albany, N. Y. ; Nathaniel Ingersoll ; F. Bacheller of Lynn ; Henry R. Stiles of Woodbridge, N.J. ; R. A. Fisher of New Haven ; S. P. Fowler of Danvers ; Corporation of Bowdoin College.

The Chair, in opening, said there were some matters of curious interest to be noted in regard to the place of to-day's meeting. This section of the shore, from Kettle Cove on the west to Fresh Water Cove on the east, and for a limited, though rather uncertain distance inland, was marked as if with some terrible malediction. The pasturage is good, the land fertile, the air salubrious. Man enjoys himself here, his horses and his poultry, his household animals, all seem to thrive. The birds of the air and the fish in the sea are undisturbed, but the poor cow, the ox and the sheep, are cursed as with the finger of death. They cannot live here. The hay grows bright and fair on these fields ; it is sold and carried away to feed such animals, and no harm is known to arise ; but one of these fated creatures cannot be kept on these lands more than a few months at most, and often but a few weeks. The breadth of Kettle Cove divides this blighted spot from a better ; the sickening kine on this side may look and low across to their kindred, grazing in sight

on the other, in sleek and unbroken health. Some hundred acres are known to be thus stricken; and for more than a century the Knowltons and their ancestors, proprietors here, have suffered and wondered at this infliction of nature. No observation or experiment has yet revealed the cause; the mystery remains a mystery still.

On a motion to that effect, Messrs. C. M. Tracy of Lynn, A. W. Dodge of Hamilton, James Bartlett of Wenham, and Henry F. King of Salem, were made a committee to investigate this curious subject and report the results to the Institute.

JAMES J. H. GREGORY, of Marblehead, described the geological features of our coast region, and particularly dwelt upon the remarkable dykes of greenstone which almost everywhere appear, cutting the granite or sienite at all sorts of angles. In this vicinity the prevalent rock is nearly a true granite, and is a very useful building stone. Westward, the greenstone type predominates, and the rock, though worse for walls, is much better for macadamizing. This hill, where we stand, is no doubt a vast pile of bowlders and loose fragments, coated with a soil, comparatively thin; formed from the decomposition of the rocks in part, with an addition of accumulated vegetable matter. But few notable minerals are found here; even the iron does not, probably, form over two per cent. of the mass of the rock, but this is quite enough to affect the compass-needle perceptibly.

Rev. C. C. BEAMAN of Salem, had visited "Rafes Cleft" and the other remarkable spots in the vicinity, and had been charmed with the beauty of the scenery he had fallen among. He could congratulate the Institute on their good fortune in meeting here; and he could also congratulate the people of Gloucester that the natural and historical features of the place had received such fitting and satisfactory notice in the recent history of the place by Mr. Babson.

GEORGE D. PHIPPEN, of Salem, had heard the question asked during the day, whether this region possessed any special interest in its history; and he had heard a negative reply given. But the fact was otherwise. No one should forget that the first settlement on the proper soil of Massachusetts was near this spot, a little toward Cape Ann. The region, from that little colony toward Naumkeag or North River, was thought very beautiful by the early voyagers. Gosnold thus spoke of it in 1602; and the redoubtable Capt. John Smith, a dozen years afterwards, declared that "Cape Ann Side," as it was long called, was "the paradise of all these parts." When Higginson came here with his few followers, and also when the *Arabella* arrived with the honored lady whose name she bore, the passengers described the perfume that came from this shore "like the smell of a garden." They said, also, that here they landed and picked "plenty of strawberries, gooseberries, and sweet single-roses." We have been regaled with some such to-day.

The natural as well as the civil history of this district, has its points of interest. They have attracted the attention of the curious and scientific for years, even from the time of Jocelyn's mythical lions and monstrous frogs, to the present day, notorious with the fame of the Sea Serpent. And if to pass hence to the subject of plants be not too abrupt, we all know that no other spot in New England shares with this the glory of producing the *Magnolia Glauca*. And here, as the lovers of the beautiful have seen to day, is a special haunt of the *Kalmia* or Mountain Laurel, a truly American plant, and worthy to be adopted as a national emblem by us, as the "Fleur de lis" has been by France. Or, looking to somewhat humbler forms, the same great order of Heaths to which the *Kalmia* belongs, furnishes many other species to represent it in this vicinity; and all are plants of special beauty. Thus, although there is no true heath in the western world, we have abundantly before us the remarkable

beauty that characterizes the family to which it gives its name.

F. W. PUTNAM of Salem, being asked what was the opinion of Agassiz as to the Sea Serpent, stated that the great naturalist had often remarked to him that "there was no reason why there should *not* be a Sea Serpent, but as yet he knew of no sufficient proof that there was one." Rafinesque, a half century ago, named and described from the accounts given by sailors and others, several genera and species of Sea Serpents.

A committee of the New-England Linnæan Society made a report which was printed forty or fifty years since, upon a specimen, as it was claimed, of this wonderful creature. But that specimen was, doubtless, nothing but a mal-formed black snake.

Mr. Putnam remarked upon the kinds of insects collected by him during the day, stating that such as are found along the sea shore always differ materially from those proper to the interior. He further spoke of the difference of the animals of the land and the ocean, saying that in the ocean while we find nearly all classes represented, they are generally the lower orders of the class, and also species that attain the greatest bulk; thus in the higher class, that of mammalia, we find its giants, the Whales, only in the ocean, and these are of the lowest order of the true mammals.

In the class of Birds, the lowest, or the Sea-Birds, are also of large size, having but few equals on land. In the Reptiles this is reversed, as we find that what have generally been held as the highest order, the Chelonians, are represented by the large Sea-Turtles; while the lowest true Reptiles, the Snakes, are terrestrial. Among the class of Batrachians there are no marine representatives known. In the class of Fishes, the Sharks and Skates exceed all others in bulk, and

are confined to the ocean, though they are in many respects more highly organized than the other fishes; again, the lowest of all fishes, the Lancelet and the Mixine, are purely marine animals. Among the Articulates the class of Crustaceans is to a great extent oceanic, and the larger species are strictly so. Most of the large worms are inhabitants of the salt water; and even among the Insects there are many species that live on the sea-shore, on the Sea-weed, &c. The greater number of the Mollusks are also marine, and the whole class of Cephalopods (Squids, &c.,) in which we find the giants of the branch, are strictly so. Among the Radiates there are few, such as the fresh water Bryozoa, that are found away from salt water. The difference noticed between the animals of the ocean, the fresh waters, and the land, is, as a general thing, so well marked, that we can almost always assume that the oceanic representatives of a group are the lowest, the fresh-water ones being higher and the terrestrial the most highly organized.

C. M. TRACY of Lynn, had spent most of the forenoon in the Magnolia Swamp. There are species of plants in that spot not generally to be met with. Not only is the Magnolia there, but also a beautiful white fringed Orchis; the pretty *Clintonia*; the Inkberry, a species of Holly, and one of the finest evergreens we have; the brilliant and charming Sundew; with others of commendable beauty. He would like to make careful search through that swamp, for it would hardly fail to reveal many botanical treasures.

The thanks of the Institute were then voted to the Messrs. Bartlett of Wenham and the Messrs. Knowlton of Kettle Cove, for their kind attentions during the day, and the Institute adjourned.

Thursday, August 6, 1861.

FIELD MEETING AT LYNN.—This meeting was held at the Gravesend Village, and had been appointed for Wednesday of the week previous, but postponed on account of important public events. The company having mostly arrived in the morning train from Salem, and alighted at the Central Station, proceeded to the rendezvous on foot through the tract known as "Rocks Pasture," and under the direction of Mr. W. W. Lummus. No especial haste was made in this walk; and some halts were made to visit High Rock, and the other elevated spots, and pleasant locations, with which this territory is so well supplied. Arriving at the Gravesend School House, a temporary stay was had, and then a division into small parties for further explorations. One detachment, led by Mr. H. S. Lufkin, made a tour among the meadows and copses in the vicinity, in search of the varied botanical riches there found, and these had much pleasure and encouraging success.

A second division resorted to the shore of the Flax Pond, near by; and found much satisfaction in the examination of the surroundings of this fine old sheet of water. Others took various jaunts among the neighboring hills and woods in quest of geological and other objects of interest, of which no small share are to be met with in this region.

• The afternoon meeting was organized in the school house at about 3 P.M., when in the absence of both President and Vice President, George D. Phippen of Salem, was called to the chair.

Records of the preceding meeting read.

Donations were announced as follows:

To the Library—from Mrs. A. Nichols; Miss M. Ward; R. H. Wheatland; Trustees of the New York State Library;

C. B. Richardson of New York ; N. Bouton of Concord, N.H.; Zoologishen Gesellschaft der Frankfurt ; A. P. Howard of Boston.

To the Cabinets—from S. V. Shreve ; Mrs. J. F. Deypeyster of New York.

Letters were read from the Trustees of Boston Public Library ; Corporation of Yale College ; C. M. Tracy of Lynn ; L. Agassiz of Cambridge ; A. P. Howard of Boston ; Mrs. Frances G. Deypeyster of New York ; D. C. Gilman of New Haven Conn.; C. M. Endicott ; M. A. Stickney.

The Chair, in introducing the exercises, made some statements explanatory of the principles, objects and history of the Institute, and of the purposes and method of these "Field Meetings." We had pursued this system of gatherings for several years, and thus far, with signal advantage and enjoyment to all who participated. At these meetings we bring together those who feel an interest in the works of Nature and who make them their especial study ; and we place them face to face with the various phenomena of creation, as they are exhibited in our fields, our hills, and our forests. By these excursions, we are relieved from the necessity of studying these things in the dry, dead cabinets of home ; and the student who walks with us has a view of them as Nature has herself arranged them, drawing his conclusions from facts undisguised by the interference of man, and free from that partial and imperfect character which will ever be detected, even in the best ordered and fullest collection. Such students of nature are with us today ; may we hear from them how they have fared in these respects during the day's rambles.

JAMES J. H. GREGORY of Marblehead, said that this region presents many interesting matters to the eye of the geologist. In this immediate vicinity, the rock in place is uniformly porphyritic, and the porphyry takes on a great variety of texture, color and marking ; so that a long and pleasant

course of study might be made upon this rock alone. The State Map does not notice the porphyry of this vicinity, or only feebly indicates it. This is certainly a grave defect, and ought to be amended; for the rock is too rare and striking in its characters to be overlooked in such a work. Greenstone is found not far from here, but it is somewhat different from that of Marblehead, being of a rather slaty character.

Mr. Tracy, of this place, has thrown out the suggestion that the type of vegetation in a given territory is directly affected by the nature of the rock formations there found. He had no doubt but this idea was based on fact. He had to-day made a short excursion of a mile and a half, or so, to look at some of the curious exhibitions of drift to be seen among these hills. In this ramble he had seen for himself that a difference could be detected in the forest growth along either side of the line of junction between the porphyry and the granite. No doubt a closer study would set this matter in a clearer light; it is certainly a point deserving of careful attention. He had been to-day among bowlders of every size, from small pebbles to a small house, for some of them were at least one hundred and twenty feet in circumference and thirty feet high. And yet these great blocks are not left with sharp angles, but in almost all cases are rounded and finished off like beach-stones. Undoubtedly they have all been moved, and belong to the great mass of the drift formation. In the deep woods near the South Danvers line, he had been piloted by Mr. Tracy to find what he could never could have found alone—the somewhat noted and very remarkable “Phæton Rock.” A more curiously situated rock would be hard to find, or to conceive of. A vast block shaped like half a pear with the flat side undermost, some ten or fifteen feet in greatest length, lies precisely balanced, and firmly sustained on four small rounded stones twelve or fifteen inches in diameter, just on the brink of a precipice, over which its smaller end projects for almost half the length

of the entire block. We can never sufficiently admire the means, stupendous as they must have been, and yet magnificently simple, by which such a mass has been thrust out from its parent bed and deposited in a position so strange, and we may almost say, magical.

The mineralogist is not favored in this region like his geological brother. So far as ascertained, the list of species is small and the kinds not specially remarkable. He had been asked whether rocks grow. The question may be variously answered. In some cases, rocks certainly *grow smaller* if the expression be allowable. The wind and frost—all the elements—are wearing down the granite about us and the figure of the ledges becomes much altered by this cause. Rocks whose structure depends on the agency of heat can have no increase of bulk afterward; but such as limestone, sandstone, bog iron ore, and chalk, the products of mere accretion and pressure, may be all the time in process of formation, or, as we might say, of growth.

The distribution of shells is always interesting to the geologist, bearing, as it does, on the subject of fossil remains. An exploration of the islands in Salem Harbor affords some curious results, in the peculiar distribution of the genus *Helix*. On House Island, near the Miscry, are found several species, some of them in abundance. Eagle Island also furnishes many specimens, but they differ materially from those of the first locality. *Helix albolabris*, *H. alternata* and *H. hortensis* are the principal kinds found at these places.

O. M. TRACY of Lynn, said that although the list of minerals found here was not large, yet some of them did not lack importance. One of the first, if not the very first, establishments for the working of iron in this country was at Saugus, and was supplied, as is believed, with bog iron ore from the northern part of the town. Again, just east of the place of meeting, lies the celebrated Lynn Mineral

Spring, whose waters, almost turbid with some ferruginous matter, redden the stones they run over, and will throw down clouds of solid matter by standing in a bottle for a few days. This is a true chalybeate water, and may acquire its properties by the decomposition of iron pyrites.

THE CHAIR observed that from the rocks we may readily turn our attention to the vegetation that covers and adorns them. Many fine species may be detected in this region ; some of them have come to our notice to-day. The fragrant White Alder, (*Clethra*), the Dogbane, (*Apocynum*), and the various Milkweeds, (*Asclepias*), are all plants of beauty and deep interest. A species of the latter, the Common Milkweed (*A. Cornuti*) has a fibre of great strength and delicacy, resembling that of Flax. A lady of Salem made extensive experiments on this material a few years since, and succeeded in manufacturing it into various textile fabrics of much excellence. In approaching damp lands, or, as here to-day, large ponds, we find the vegetation always more or less modified, and new forms appearing. Such plants as the Monkey Flower, (*Mimulus*) and the various species of Orchis were then usually met with, as we have found to-day.

C. M. TRACY said that the Orchis Family, alluded to by the Chair, is a very remarkable one, as well as very extensive. Among its multitudinous species, two entirely diverse modes of growth are observed. The European and North American forms follow the usual style, and sustain themselves in the soil by means of ordinary roots. Some of the tropical kinds do the same ; but very many are without roots, or have them transformed into organs for holding, by which they attach themselves to rocks, trees, &c., and these grow with no connection whatever with the earth. They are not mere exceptions, but form a great division of the family, which is thus distinguished into Terrestrial and Epiphytic species. The *Lobelias* are all plants of much interest

to the botanist. Our Cardinal Flower is the only really beautiful one we have, but the West Indian species are, many of them, perfectly gorgeous. The *Clethra*, which has been alluded to, is one of the great family of the Heaths, and almost the latest one, with us, to open its odorous blossoms. It is a pretty shrub for the garden, growing and flowering well. The Dogbane also mentioned is a close relative of the popular Oleander. Its family are all possessed of active properties and some are violent poisons. Here we may note the fact, that a simple feature marks every member of this family, as the botanists often finds to be the case elsewhere. Every one of these plants has the stigma, or top of the pistil, shaped just like a little spool, and this simple trait is not found in any other family. He further spoke of the Ground Nut, (*Apios*) the Thoroughwort and Everlasting, with several of the Nightshades. The Potato is only a cultivated Nightshade producing tubers; and these tubers are not roots, as some think, but buds upon underground suckers, swollen and gorged with nutritious matter. A specimen was shown with the tubers growing above ground. Mr. T. having also spoken of the fact that the common Red Clover has sometimes heads of a clear white. The Chair corroborated the observation and added some remarks on changes of color in our native flowers.

JAMES E. OLIVER of Lynn said he had found these bleached Clover-heads and the Thistle now and then exhibited similar changes. What is the real nature of this phenomenon? Can we call it a freak of nature, or is it something produced under a regular chain of causes, and reducible by experiment and investigation? And if there exist laws for the change of color in flowers, may there not be such for change of species in the plants themselves? In fine, what is the true solution of the vexed question of the origin of species? Plainly such changes may be very easy and gradual, or they

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may be rather sudden—by leaps, as it were; but which, may be rather hard to decide.

Mr. TRACY said that when plants with colored flowers produce pale or white varieties, these are almost inevitably weaker in constitution. This is confirmed by the fact that there is hardly a pure white flower known. What we call such are all attenuated shades of other colors. And we also find that white flowers produced by art, always tend to revert to their normal tint. *Verbena Melindres* is red; and all the white sorts produced from it are liable to redden in certain cases. So of the *Geranium*, &c.

The CHAIR said these changes are no doubt producible by art; but a long period must be necessary to effect the result, and after all, retrogradation would certainly take place at the first opportunity. Nature is inevitable in her rules and laws. Our fathers gathered just such plants and flowers as we; and when we interfere with the natural course, the current sets back strongly toward its source. Double varieties are always difficult to keep, always “running out” as we say.

This topic was much further discussed by Messrs. GREGORY, OLIVER, TRACY, T. ROPES of Salem and others.

Rev. C. C. BEAMAN of Salem said, he noticed that some of the company had to-day brought their sketch-books and made drawings of the beautiful things around them. He wished this were oftener done. It would be a delightful exercise, and better opportunities could not be had.

Mr. DAVID N. JOHNSON of Lynn, had experienced much satisfaction during the day's exercises, and added some remarks on the variety of talent which such occasions tended to bring together.

On motion of **Mr. BEAMAN** it was Voted, That the thanks of the Institute be presented to the School Committee of Lynn for their kindness in furnishing the use of this building for this meeting ; to **Mr. L. W. Crossman**, the teacher of this school for his friendly interest in our behalf ; also to **Messrs. W. W. Lummus, H. S. Lufkin, Oliver Ramsdell** and other residents in this village, for their attentions and services, as guides and otherwise.

Adjourned.

Thursday, Aug. 29, 1861.

FIELD MEETING AT MIDDLETON. Most of those who attended this meeting, came as usual by the morning train from Salem ; but others of the more active collectors of natural objects preferred an earlier trip by the carriage road and came accordingly, making such stops for their investigations as seemed to be proper, or promised to be productive. This party made some considerable progress in dredging the brooks and sweeping the bushes, for reptiles, shells, or insects as the case might be ; while fishing after the more established mode was not by any means neglected ; but failed to afford any notable results.

On the arrival of the main party the scene of action was transferred, for the most part, to the shores of the fine pond which bears the name of the town which claims and protects it. The usual diversity of taste here found exhibition and employment, as this company lounged in the pleasant picnic grove that adorns the shore, or that one proceeded slowly along by the water, carefully searching after some unexpected plant, or another manned the jaunty sail-boat there kept, and pleased themselves with an excursion more thoroughly aquatic still. There were not wanting those who sought for berries ; and the geological characters of the

place were well scrutinized by those who seldom neglect a fair opportunity.

The refreshments of the day were served in rustic style in the grove, after which, resorting to the Town Hall, the afternoon exercises were opened, Vice President S. P. Fowler in the chair.

Records of preceding meeting read and donations from the following were announced :

To the Library—from Mrs. Andrew Nichols ; Department of the Interior ; John B. Alley, M.C. ; John Robinson ; George F. Read ; Zoologische Gesellschaft, Frankfort, A.M. ; American Philosophical Society.

To the Cabinets—from W. S. Daland ; C. H. Norris ; George Goldthwaite ; Samuel Preston ; Israel T. Howe ; Joshua P. Haskell of Marblehead ; J. J. Rider.

Letters were read from E. Everett of Boston ; Trustees of Newburyport Public Library ; Department of the Interior ; D. F. Weinland, Frankfort, A.M. ; C. M. Tracy of Lynn.

In his opening remarks, the Chair took occasion once more to urge on those present the importance of preserving the local and civil history of our community by the preservation of all documents, regarded, perhaps, as worthless, while still possessed of intrinsic value. Of this nature, all old wills, contracts, depositions, records and books of account, may be mentioned as worthy of prime regard. Likewise all old books ; the older and more marked by the pens or pencils of the former owners, the better ; and every pamphlet, newspaper and old letter ; all should be carefully saved, for no one knows how much there may be in one or other of them for the good of those who are to come after us. It is the business and pleasure of the Essex Institute to be the treas-

urer of these relics ; all that need be done is, to send to their Secretary any and all such contributions, and the three-fold advantage is gained, of pleasing them, of benefiting posterity, and clearing one's own house of what might unsuitably encumber it. Let all remember these things, and let no document go to destruction, however insignificant it may be in your own eyes.

JAMES J. H. GREGORY, of Marblehead, had examined the place pretty thoroughly for geological features worth mentioning here. He had found only two ledges of out-cropping rock in the town, and this was a very peculiar circumstance. Not many places in New England could say the same ; we generally are marked, all over the country, by bare and craggy projecting rocks of one sort or another, often in great profusion. Undoubtedly, rock might be found under all this gravel, as in other places ; but at present, the drift lies undisturbed and conceals them. There seems to be great variety in the character of this drift ; around the pond were many of the different types of granite and forty of them might be collected within an hour. He had procured a good specimen of sienitic granite ; also a piece of pure sienite, from which the feldspar had been washed out, leaving curious, irregular markings and cavities. These ribbed and worn fragments are rather common along the ancient water-courses of New England, and indeed there is nothing very peculiar in any the formations about here. The chief point of interest is, after all, the abundance and quietude of the overlying drift, so covering and hiding all the ledges that only two of them anywhere appear.

C. M. TRACY of Lynn, had noticed some plants about the pond worthy of note, and some still more striking had been found by others. The Pipewort, (*Eriocaulon*) whose globular, lead-colored heads are so conspicuous along muddy

shores, is a kind of intermediate form of vegetation, having much of the sedge about it and not a little of the character of a moss. It is however, a true flowering plant. The little Creeping Spearwort (*Ranunculus*) is almost the smallest of the Buttercup family, but though its leaf is no broader than a grain of wheat; and its blossoms as small as a sparrow's eye, yet its petals bear the beautiful lustrous gloss in full perfection, that so marks each and every species of *Ranunculus*. The shrubby *Potentilla* is, generally, more common about peat bogs, and in its time of flowering makes quite an ornamental appearance, for although a simple Five-finger, it has a pretty, compact habit, and claims more beauty for its form than otherwise. Beside these, a fortunate explorer had to-day detected a splendid clump of the Cardinal Flower, (*Lobelia*) whose always inimitable scarlet had sported into the most coquettish dashes of red upon a ground of the purest white. A few of these variegated *Lobelias* have been found from time to time about the country, but it is doubtful if any more beautiful have come to light than Middleton has furnished us to-day. Those other plants, whose intrinsic charms are a little veiled by their common occurrence, are as readily found here as elsewhere. We have to-day the Aster, just beginning its season of bloom; the Andromeda, akin to the Blueberries, but with dry and fleshless fruit; the Balsam, with its curiously fashioned flowers hung all over it, like golden horns-of-plenty; the Thoroughwort, of sterling medicinal value, in which Middleton seems privileged for a full share; the fragrant Ground-nut (*Apios*); the aromatic Sassafras; the deadly *Cicuta*; the pretentious Trumpet weed, eight feet high; and a score of others all worth some notice at a proper moment.

DR. GEORGE OSGOOD, of Danvers, continued the same subject, and added to the interests of the plants themselves a yet stronger interest arising from the untiring devotion to

his favorite study, seen in this botanist of almost eighty years. To-day he had met with a species, which he exhibited, the like of which he had not found for many years.

F. W. PUTNAM, of Salem, proceeded to describe most of the zoological specimens taken during the day. He also, by the help of the blackboard, explained the four divisions, or branches, of the animal kingdom; showing how the radiated structure characterizes the Star-fishes, Jelly-fishes, and Polyps, or coral animals, hence called Radiates; how the character of concentration is stamped on all animals belonging to the branch of Mollusca, of which the Clam, Snail, and Squid are common examples; whereas, in the branch to which the Insects, Crabs and Worms belong, articulation, or a division of the body into segments, added to an equal arrangement of parts on each side of the longitudinal axis, and a tendency to an outward display, are the principal characteristics; this branch is called Articulata; while in the fourth branch, that of Vertebrata; formed of the Fishes, Reptiles, Birds and Mammals, including Man; the body is divided by a longitudinal axis, the back-bone, into an upper and lower arch; the upper containing the brain and spinal chord, while in the lower are situated the organs of vegetative life.

In reply to questions, Mr. P. said what we call the locust is quite another insect. The oriental Locust is only a species of what we call a Grasshopper; while our Locust ought, instead, to be called the Harvest Fly. Again, the real Grasshoppers are small green insects, quite different from those that have borrowed this name. The noise produced by these creatures is not at all vocal, but made by a brisk, fiddling movement of the rough hind leg across a part of the wing-cover. Further, Mr. P. stated, that the whales now on exhibition at the Aquarial Garden, Boston, were genuine specimens of a small species known to naturalists as the *Beluga*; and were very well worth an examination.

THE CHAIR said that this season we had been visited, in our fields, with what all of us had often heard of, but many had never seen. This was the dreaded army worm. He had specimens of the worm and its cocoons on the table, and had been somewhat careful in observing its habits. It had been known in this country two or three times before, but only at long intervals. This might be the last time it could be observed by any now living, and it would be well to improve the opportunity, and put on record what we might of its character and history.

On motion the following were appointed a committee to collect all available facts on the above subject and report at the Annual meeting of the Institute :—Messrs. F. W. Putnam and Henry Wheatland of Salem, and S. P. Fowler of Danvers.

Rev. WARREN BURTON, of Middleton, offered some remarks expressive of his high gratification at the proceedings of the day. He cordially approved the purposes and plans of the Institute; and while he wished them full success, was always glad when they sought that success in this quarter of the county.

DAVID STILES, Jr., of Middleton, made some statements of a local character, bearing chiefly on the history of the town and certain of its prominent families. He further assured the Institute of the hearty welcome they might ever expect on visiting this town, and his own hope that such visits might be often had and enjoyed.

The thanks of the Institute were then voted to Messrs. Stiles, Esty, Graves, and others, whose kind attentions so much enhanced the comforts of the day; to the Selectmen, for the use of the Town Hall for this meeting; and the citizens of Middleton generally for their friendly interest in our prosperity; after which the meeting adjourned.

Friday, November 15, 1861.

Meeting this evening, at the rooms in Plummer Hall, the President, Asahel Huntington in the chair.

The record of the preceding meeting read.

Donations were announced from the following :

To the Library—from H. K. Oliver, a large collection of books and pamphlets, including many valuable musical works ; from C. B. Richardson of New York ; L. M. Boltwood of Amherst ; A. H. Quint of Jamaica Plain ; Boston Society of Natural History ; Canadian Institute at Toronto ; John L. Sibley of Cambridge ; Chas. T. Brooks of Newport ; Montreal Society of Natural History ; C. K. Whipple of Boston ; J. F. Worcester.

To the Cabinets—from Joseph Short of Philadelphia ; J. W. Libbey ; Chas. Hoffman ; Edward D. Ropes ; Mrs. Thos. S. Greenwood of Ipswich ; Willard A. Ashby ; S. P. Richardson ; Stillman Barden of Rockport ; John B. Ashby ; Richard S. Rogers ; Geo. L. Neal ; W. H. A. Putnam ; Museum of Comparative Zoology at Cambridge.

Letters were read, from Massachusetts Historical Society ; Trustees of Boston Public Library ; Edward D. Ropes ; Charles Hatch ; A. B. Almon ; and N. T. True of Bethel, Maine.

It was announced that a portion of the books bequeathed by the late Judge White, had been deposited in the Library, that the remainder would be received in a few days, and that, at a future time, a report concerning the same would be presented.

A. C. Goodell, Chairman of the Committee on Evening Meetings, reported progress on the subject committed to their care, and on his motion it was voted that the next meeting be held on the first Monday in December.

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Henry M. Brooks, of the Curators on the Historical Department, read a circular which he had prepared, requesting the friends of the Institute and others to collect any matter that may serve to illustrate the cause, origin and progress of the present war ; and, on his motion, it was voted that the same be printed and distributed under the direction of the curators.

A large collection of specimens in Natural History were placed upon the table, the same having been recently received. F. W. Putnam made a few remarks upon these specimens, and stated that there were on the table 262 different species, and over 400 specimens of animals, and that at least 200 of these species were new to the Institute's collection, this being a much larger number of species than it was often the good fortune of any Society to obtain at one time.

The collection received of Mr. E. D. Ropes, of Zanzibar, is of great value to science, and will add much to the usefulness of the Institute's collection. There are several new and undescribed *genera* and *species* of Fishes in this collection, and many that are very rare and interesting—in all, 54 species of *Fishes*, 7 species of *Birds*, 4 species of *Reptiles*, 30 species of *Mollusks*, 33 species of *Crustaceans*, and 39 species of *Radiates*, making 167 species of alcoholic specimens. Many of the *Radiates* and *Crustaceans* are undescribed. In addition to these there are three bottles containing *Insects* in alcohol that have not yet been arranged, and a large number of dried specimens of *Corals* and *Sponges*, that will be reported upon at a future meeting. Besides the specimens retained at the Institute, quite a large number of duplicates have been sent to the Museum of Comparative Zoology at Cambridge, in exchange for species not in the possession of the Institute. Mr. Putnam desired to take this opportunity of calling the attention of members

to the importance of collecting large numbers of every species; duplicates are in reality as valuable to the Institute as unique specimens, for the purpose of exchange. On motion of Mr. Putnam the thanks of the Institute were unanimously voted to Mr. Ropes, for the valuable and interesting collection of specimens of Natural History announced this evening. Mr. Putnam, alluding to the other specimens on the table, said that they consisted of a collection of 66 species of *Reptiles*, *Fishes*, *Crustaceans*, *Mollusks* and *Radiates* from Hong Kong, China, presented by Capt. W. H. A. Putnam, nearly all of which are new to the Institute's collection and some of them are undescribed. A collection of 9 species of *Holconotes*, (viviparous fishes) from San Francisco, and 13 species of *Cyprinoids*, (Shiners, &c.,) from Europe and the western portion of America, have been received from the Museum of Comparative Zoology, consisting of types or original specimens of species described by Prof. Agassiz, Mr. Agassiz, and himself; also, specimens of a Blennioid fish from Cape Palmas, Africa, presented by Dr. George A. Perkins, and a few of the fishes presented some time since by Capt. Charles Millet, from the Arabian Gulf.

Mr. Putnam called upon the members to report any facts which they might obtain relating to the army worm, as every thing bearing upon the habits and history of this insect is eagerly sought after by entomologists, and stated that he had learned from Mr. Packard, a student in the Museum of Comparative Zoology, who is engaged in preparing a paper upon this subject, that no less than seven species of parasites of the worm had been discovered.

After a short discussion on the army worm and the canker worm, in which several members participated, the meeting adjourned.

Monday, December 2, 1861.

Meeting this evening, at Creamer Hall, A. Huntington, President of the Society, in the chair. After calling the meeting to order, he offered few remarks in which the distinctive character of these meetings were alluded to, and expressed the hope that they would be instrumental in diffusing much general information respecting the various subjects here presented. In alluding to the historical labors of people of our county, he referred to a work recently published, giving a genealogical and historical account of the Reed family, by a member of the Essex Bar, living in Groveland, which contains a large amount of valuable information obtained by great labor and research.

The records of the preceding meeting were then read by the Secretary, after which Mr. A. C. Goodell, from a Committee appointed for the purpose, submitted a report, which was accepted, respecting the regular evening meetings for the present season. The first and third Monday evenings of each month have been selected for the meetings, which will commence at half past seven o'clock. Creamer Hall has been designated as the place of meeting, and a general invitation is extended to all ladies and gentlemen interested in the objects of the Essex Institute, to attend. The order of exercises at the meetings will be as follows:—Reading of the records of the preceding meeting and remarks upon the same; Reports of Committees; Transaction of Business; Reading of Communications and Correspondence; Announcement of Donations; Election of Members; Adjournment.

Mr. F. W. Putnam continued his report from the last meeting, on the collection made by Mr. E. D. Ropes, at Zanzibar. He stated that the bottles on the table contained about sixty species of insects, many of which are new. This is the first collection of any number of alcoholic insects that

has been presented to the Institute. They have been named so far as it was possible by Mr. Shurtleff, a student in the Museum at Cambridge. He showed several species of Star fishes, Sea Urchins and Corals from Mr. Ropes, and a fine *Cidaris* from Wm. G. Webb, and announced a donation of 25 species of fossil and recent *Echini* from the Museum of Comparative Zoology at Cambridge. He alluded to the different classes of Radiate animals, showing the difference between the several classes and orders, and made a few remarks upon the formation of Coral reefs, &c.

Letters were read from Smithsonian Institution; State Historical Society of Wisconsin; W. O. White; J. K. Wiggin of Boston; Department of the Interior; Chs. Ward. The letter from the last named person, gave an account of several specimens of bark which were uniformly and smoothly rounded by the action of water falling upon them in "pot holes" formed in the rocks, at the base of Great Falls, in the town of Hiram, Oxford County, Maine; also some general observations concerning the beauty and sublimity of these falls at the various seasons, and the pleasant journey for travelers in that direction.

Donations received since the last evening meeting, were announced as follows:—

To the Library—John C. Lee; B. W. Stone; Tenney & Co., of Boston; Secretary of State's Office; Charles F. Williams; Jacob Batchelder; H. M. Brooks; Allen W. Dodge; George C. Chase; N. T. True of Bethel, Maine.

To the Cabinets—Francis M. Ricker; H. K. Bryant; H. E. Story of Belleville, Ill.; C. F. Williams; Mrs. D. A. White; Museum of Comparative Zoology, at Cambridge; Henry O. White.

Mr. F. W. Putnam stated that Mr. S. H. Scudder of the Museum of Comparative Zoology, was engaged in preparing a monograph of the Orthoptera of New England, and wished

to procure specimens of Grasshoppers, Locusts, Crickets, native Cockroaches, Earwigs, &c., from different localities, during the coming season; and called upon the members and others interested to collect specimens for Mr. Scudder, stating that it was a very important investigation, and bearing much upon the Agricultural interests of the County.

Mr. Putnam laid a prospectus of a work upon the order of snakes by Prof. Jan, of Milan, before the meeting; and after stating the importance and the plan of the work he moved that the Library Committee be requested to consider the expediency of subscribing for the same.

On motion of Mr. A. C. Goodell, it was voted that, when the meeting adjourn, it be to meet at Creamer Hall, on Monday evening, Dec. 16. The meeting then adjourned.

Monday, December 16, 1861.

Meeting this evening. A. Huntington, President, in the chair.

Records of preceding meeting read.

A letter was read from H. W. S. Cleveland, in response to the circular recently issued by the Curators of the Historical Department, proffering to the Society files of several newspapers kept and being kept during the present national troubles. On motion of Rev. Mr. Beaman, the offer of Mr. Cleveland was accepted, with the thanks of the society. Letters were also announced from J. B. Colt of Hartford, Conn.; A. B. Johnson of Utica, N. Y.; New York Mercantile Library Association; New Jersey Historical Society; Massachusetts Historical Society; Samuel Blake of Dorchester; J. W. Harris of Cambridge; S. P. Fowler of Danvers.

The principal part of the evening was occupied in the reading of a paper by Mr. Samuel P. Fowler of Danvers, on Cotton Mather. The following abstract of the same is here appended.

After the excitement in 1692, caused by the Salem Witchcraft, had subsided, and the government had made some restitution to those persons or their families who had suffered by the delusion, Dr. Cotton Mather turned his attention, amongst other subjects, to the quiet and peaceful study of the natural productions of New England. Our knowledge of his researches in nature was obtained by reading the London Philosophical Transactions, Vol. 29, for the years 1714, 1715, and 1716. The letters composing the articles in this journal were prepared and sent by Dr. Mather to Dr. Woodward and Mr. Waller of London, for examination before publication. Upon the receipt of Mather's letters, the Secretaries of the Society found them to be a strange mixture of incredible occurrences, totally unfit for a Philosophical journal. They accordingly refused to publish several of them, and gave but short extracts from others.

The first letter, under date of Boston, Nov. 17, 1712, was addressed to Dr. Woodward, in which Dr. Mather brought forward in a way peculiar to himself, his *Biblia Americana*, now lying neglected in the possession of the Massachusetts Historical Society, no man as yet having been found who would venture to publish this ponderous manuscript in two volumes folio.* The concealing from his friend, Dr. Woodward, the author of this work, and recommending it to some generous *Macaenas*, (the patron of the ancient poets,) is highly characteristic of Dr. Cotton Mather. In order to enlist Dr. Woodward in the publication of the *Biblia Americana*, Mather speaks of its containing large philosophical remarks taken out of Natural Historians, and gave him a specimen of the work in a note on Genesis, chap. 6, verse 4, relating to giants seen in the days of Noah; and as proof that they once existed, relates the finding of bones in Albany, New England, seventeen feet long, which he supposed to be hu-

*We examined the *Biblia Americana*, and found it to consist of six parts in folio, with its pages crowded with the small handwriting of Mather, and apparently prepared for publication.

man thigh bones, and a tooth discovered four fingers broad, which he thought to be the eye-tooth of a man! Dr. Woodward comments in a doubtful way upon these supposed human remains by saying: "It were to be wished that the writer had given an *exact figure* of these teeth and bones," which had it been done, the learned Secretary would probably have at once discovered that they belonged to some large animal, such for instance, as the Mastodon.*

The second letter describes a few plants to be found in New England, with a promise to furnish more.

In the third letter Dr. Mather gives us an account of the wild turkey seen in New England, some of them weighing sixty pounds, but says they are poor meat, being tough and hard. This as an ornithologist we should pronounce a tough story. Audubon says, a fair estimate of the ordinary weight of a wild turkey is from fifteen to eighteen pounds. He saw one in Louisville market that weighed thirty-six pounds. Bonaparte says, "I have ascertained the existence of some weighing forty pounds, and all the relations above this weight he considers fabulous."† Dr. Mather's notion that wild pigeons migrate to the moon, must be classed with those who suppose that swallows go into the mud in Autumn!

The fourth letter, on antipathies and the force of imagination, is amusing and characteristic of its author.

The fifth letter relates to monstrous births, but is summarily dismissed by Dr. Woodward as nothing remarkable.

The sixth letter relates to persons receiving medical aid from dreams. This is rejected and refused publications, with the remark, these accounts relate but little to "natural philosophy."

*It is now well understood that the giants he referred to, were distinguished for their great wickedness and not their large stature.

†Thomas Morton in his *New English Canaan*, written in 1632, when speaking of turkeys as seen at his residence in Braintree, says: "at divers times in great flocks have they sallied by our doores; and then a gunne (being commonly called in a readiness) salutes them with such a courtesie as makes them take a turn in the Cooke roome. Of these have been killed, that have weighed forty-eight pounds apeece. They are many degrees sweeter than the tame turkies of England, feede them how you can." It is said the wild turkey is still to be found on the Holyoke range of mountains in Massachusetts. It will be noticed that Morton's weight of the largest turkey he saw in 1632, exceeded by eight pounds, the one noticed by Buonaparte. All writers with the exception of Mather, attest to the good eating qualities of this bird. It is possible Dr. Mather eat his wild turkey out of season during the summer, at some of the councils at Salem village, held for the purpose of settling Mr. Parris's difficulties, or at the dinner given him by John Hathorne, Esq., of Salem, at the execution of George Burroughs at Gallows Hill. It would not be surprising if he thought his dinner upon that day, whether turkey or pig, was hard and tough!

The seventh and last letter to Dr. Woodward, composing this series, relates to cures deemed mortal. This was rejected by the Secretary as containing but little philosophical information.

The first letter sent by Dr. Mather to Mr. Waller, gives an account of the Indians, and is interesting. It also furnishes a method discovered by him, for finding the Julian Period.

The evening glade* is mentioned as being constantly observed in February, and first noticed by Dr. Childrey, adding the cause of that appearance must be sought for above the atmosphere.

The second letter relates to rainbows and mock suns.

The third letter has a relation of a savage murder discovered by a dream, reminding the reader of the strange stories related in the *Magnalia*. This letter is at once dismissed by Mr. Waller, with the quiet remark, "as this does not directly relate to natural philosophy the particulars are omitted."

The fourth letter gives an account of the Rattlesnake, and the wonderful effect of its bite upon the edge of a broad axe, causing the part bitten to break out, leaving a gap! As this letter relates particularly to Natural History, it is published in full in the transactions.

The fifth letter informs us of the effects produced by thunder and lightning, earthquakes, hail storms, and tornadoes. Hail stones it is said, are sometimes formed five times larger than hens' eggs, and lie upon the ground to the depth of three or four feet! The effects of violent whirlwinds or tornadoes are noticed, and the sad ruin produced sometimes in winter by the ice loading the trees and causing their limbs to break under its weight. Mention is made of some ancient works, or remains, above the hideous falls of the Merrimack.

In the sixth letter Dr. Mather gives us an account of the famous Dighton rock, accompanied with a figure, which is now known to be very inaccurate. This is one of the earliest notices of this interesting picture rock.

The seventh and last letter to Mr. Waller relates to the longevity and fruitfulness of New England. Dr. Mather in this letter gives us several instances of persons living about him who had arrived to the age of one hundred years. One

*This is the luminous tract, known as the Zodiacal light seen in the evening after twilight.

Clement Weaver lived to one hundred and ten years, his wife being one hundred years old. This man to the last year of his life, could carry a bushel of wheat to the mill, the distance being above two miles. Dr. Mather remarks, "I do not find by any of these relations, that the persons observed any regularity or method in their manner of diet, exercise, or the like." In regard to the fruitfulness of New England, he says, in the letter, it is no rare thing to have an aged gentlewoman see many more than one hundred of her offspring. He mentions "one woman that had twenty-three children, of which nineteen lived to man's estate. Another had twenty-seven; another twenty-six, of which twenty-one were sons, one whereof was Sir William Phipps; another had thirty-nine children."

It is well known that Cotton Mather and his father Dr. Increase Mather were very desirous of writing the natural history of New England, but neither of them possessed the qualities of mind necessary for a natural historian, nor would they have been willing to spend the time requisite to an examination of our natural productions. Cotton Mather probably never saw the skin of a fox, except in a furrier's shop of some of his parishioners, at the North End, in Boston.

Rev. C. C. Beaman offered a few remarks in defence of Mather, thinking he was actuated by a pure desire to diffuse information, being a pioneer in this newly settled country. He said the clergymen of New England were the first to introduce the cultivation of flowers, probably obtaining the idea in England. In many places on Cape Cod this was particularly the case, and at Eastham there are the relics of a very ancient garden called the Minister's Garden, and it is well known that the celebrated Rev. Dr. Griffin, wherever he went, carried with him a taste for horticulture, and in his writings there are frequent allusions to the study of nature. In visiting West Gloucester, a year or two since, on the occasion of one of the Field Meetings of the Essex Institute, his attention was directed to the remains of an old garden laid out by a former minister of the place, who died

about the year 1800. The interest of the clergy in objects of this kind is even indicated in the lines of Goldsmith :—

“Near yonder copse, where once the garden smiled,
And still where many a garden flower grows wild,—
There, where a few torn shrubs the place disclose,
The village preacher’s modest mansion rose.”

Mr. A. C. Goodell followed, taking the general ground that it was a rare instance where a man had gained so extensive a reputation upon so small an amount of genuine merit, as Cotton Mather had succeeded in doing. He was of the opinion that Mather strove to obtain a name among men, and continued his remarks to some length, citing facts to prove this position, (and alluding to Mather’s connection with the witchcraft delusion of 1692,) not offering them, however, as of general application to the clergy, from the fact of Mather’s connection with the Ministry, although it might be remembered that not only was Goldsmith’s preacher, who had been quoted, devoted to the beautiful in nature, but

“Far other aims, his heart had learned to prize,
More skilled to raise the wretched than to rise.”

Some little discussion followed, Mr. Beaman remarking that, while it was quite likely Mather may have committed some errors, we cannot rob him of his reputation, although we can excuse his faults when we consider the state of society of that period. Give him his due, he said; let us honor those who were the early pioneers, so far as we can.

The Chair said that witchcraft was recognized by our laws as a crime, and was tried and punished as a crime by our Courts. It was recognized throughout the world; and, under these circumstances, it, at least, was not just to hold Mather accountable for that generally diffused sentiment, though he might be one of its victims. He had an agency, no doubt in carrying forward these prosecutions, as he was a leading person in his day.

The Institute then adjourned, the donations since the last meeting having been previously announced as follows:—

To the Library—from Geo. R. Curwen ; Canadian Institute at Toronto ; C. B. Richardson of N. Y. ; J. B. Felt ; A. B. Johnson, Utica, N. Y. ; Philadelphia Academy of Natural Science ; Boston Society of Natural History ; John B. Alley, M. C. ; Geo. C. Chase ; Geo. Choate ; G. B. Loring.

To the Cabinets—from Miss S. A. Chever ; Miss Rebecca Johnson of Cohasset ; Mrs. F. M. Creamer ; Forrest River Lead Company ; Arthur Hodges ; John Robinson.

Monday, January 6, 1862.

Meeting this evening at Creamer Hall. The President, Asahel Huntington, in the chair.

The records of the preceding meeting were read.

Letters were announced from Charles E. Brown of Providence, R. I. ; M. Miles of Lansing, Mich. ; New York Mercantile Library Association ; Trustees of Boston Public Library ; John Robinson.

Among the articles which had been forwarded to the society was a specimen of the fifteen cent paper currency of the Southern Confederacy picked up at Beaufort, and a sheet of unsigned military orders of various denominations issued by the Board of Supervisors, County of Winnebago, Illinois, on the war fund appropriated for the relief of volunteers. Also some unginned cotton from Port Royal, and specimens of the stones of the Washington well, near Annapolis.

A. C. Goodell, occupied the evening by reading an interesting paper on Thomas Maule, and his times. [See Historical Collections of the Institute, vol. iii, page 238.] During the reading, Mr. Goodell presented to the Institute, in behalf of Mr. James B. Curwen, a pencil drawing of the old

house built by Maule, which formerly stood on the spot now occupied by the residences of the Messrs. Curwen, on Essex Street. It was the house for many years owned and occupied by the late Deacon Samuel Holman. He also exhibited to the meeting a collection of thirteen old mourning rings belonging to a family of Salem, and kindly loaned for the occasion.

Donations received since the last meeting, were announced as follows :—

To the Library—from the Massachusetts Historical Society ; N. Y. Mercantile Library Association ; Essex Agricultural Society ; C. K. Whipple of Boston ; H. M. Brooks ; Geo. C. Chase ; Philadelphia Academy of Natural Science ; Jacob W. Reed of Groveland ; John Robinson ; Mrs. N. D. Cole ; Caleb Foote.

To the Cabinets—from Joshua Cleaves ; Stephen F. Hathaway ; Wm. Crandall ; W. G. Welch ; Mrs. H. M. Colcord of South Danvers ; Brown E. Shaw ; Mrs. James Chamberlain ; Charles Davis of Beverly ; Wm. Hulin of Rockford, Illinois.

Mr. F. W. Putnam made a few remarks upon a can of fish, and reptiles brought from the East Indies, by Capt. Wm. Crandall. Among them were two specimens of the East India python ; and in this connection he spoke of the different species of this snake, as found in South America, Africa and India.

The Institute then adjourned.

Monday, January 20, 1862.

Meeting this evening, the President, Asahel Huntington in the chair.

Records of the preceding meetings were read.

Letters were read from A. B. Almon ; Thomas H. Johnson ; S. H. Brooks.

Rev. C. C. Beaman read an interesting paper, being a historical sketch of the Howard street Church in Salem, with brief notices of the several ministers who have successively officiated in that place.

Remarks were offered by Messrs. T. Ropes ; J. B. Felt ; A. C. Goodell jr., and the Chairman, suggested by the above paper and containing many interesting reminiscences of the founders of the church and some of their cotemporaries. Mr. Goodell moved that a vote of thanks be tendered to Mr. Beaman for his interesting and valuable contribution to the ecclesiastical history of the city, and that a copy of the same be placed at the disposal of the Committee on Publications to be inserted in the Historical Collections. (See Historical Collections of the Institute, vol. iii, page 272.)

Donations since the last meeting were announced as follows :—

To the Library—from the Directors of the Lowell City Library ; Vermont Historical Society ; American Academy of Arts and Sciences ; A. B. Almon ; C. B. Richardson of New York ; Directors of Newburyport Public Library ; Ariel L. Cummings of Roxbury ; Wm. Mansfield ; John Robinson ; Henry M. Brooks ; Geo. C. Chase ; John H. Stone.

To the Cabinets—from C. H. Fifield ; S. H. Brooks ; H. M. Brooks ; E. E. Chever ; Thomas H. Johnson.

Adjourned.

Monday, February 3, 1862

Meeting this evening, A. Huntington, President in the chair.

Records of preceding meeting read.

Letters were read from Wm. Hulin of Rockford, Ill. ; and Wm. Gray Brooks of Boston.

F. W. Putnam read the following communication from A. E. Verrill of the Museum of Comparative Zoology at Cambridge :—

NOTICE OF A PRIMNOA FROM ST. GEORGE'S BANK.

BY A. E. VERRILL.

A specimen of coral now in the collection of the Essex Institute has been submitted to me for examination, by Mr. F. W. Putnam.

This was taken in one hundred fathoms of water, on St. George's Bank, and presented by C. H. Fifield to the society, Jan. 13th, 1862. It proves to be a genuine coral belonging to the genus *Primnoa*, very much resembling and probably identical with *Primnoa lepadifera* of the northern seas of Europe. From the latter however it seems to differ somewhat in the more irregular branching and in the form of the calcareous scales of the polyp cells, but these differences are slight and may be merely peculiar to this specimen. In order to ascertain its true specific characters we need additional specimens, and particularly some preserved in alcohol with the polyp cells perfect.

The specimen consists of several large branching stalks, some of them upwards of two feet high, and an inch in diameter, attached to a stone by large calcareous bases. Part of the polyp cells still remain on the branches, although they adhere but slightly when dry. The branches consist of alternate concentric layers of calcareous and horn-like deposits; the calcareous substance predominating at the base of the stalks, while the smallest branches are almost entirely composed of the horn-like matter. In this respect it differs from the true *Gorgonia*, for among them the axis is entirely horn-like. In many species of the genus *Plexaurea* there is a large proportion of Carbonate of Lime in the basal portion of the axis, while the upper parts are

horny. In the genera *Gorgonella* *Verrucella* and several others the axis is entirely calcareous, as it is in the well known Red Coral (*Corallium*.) In *Isis*, *Mopsea*, and other related genera it consists of alternate joints or segments of calcareous and horn-like deposits. From these facts it is evident that the character of having a calcareous or horn-like axis is not of so great importance as some naturalists have supposed. Thus Dr. J. E. Gray, has divided the *Gorgonidæ* into two sub-orders,* viz:—*Lithophyta* characterized as having a continuous or jointed *calcareous axis* and *Ceratophyta* having a *horny* one. Into the first he puts *Primnoa*, which, as I have shown, is *partly horny*, and into the second, *Plexaurea*, which is *partly calcareous*. It is therefore evident that such groups are quite artificial. He also has a third suborder called *Sarcophyta*, which corresponds very nearly to the family of *Alcyonidæ* of Dana and Milne Edwards. In this group, if we exclude *Briareum*, which should go with the *Gorgonidæ*, there is no solid axis and the whole mass is composed of tubular polyp cells united in various ways in the different genera. This group is evidently of higher value than the two other divisions mentioned, and should be placed on a level with *Gorgonidæ* and *Pennatulidæ*, as has been done by both Milne Edwards and Dana. But these three groups, *Alcyonidæ*, *Gorgonidæ* and *Pennatulidæ*, present gradations of structural characters which entitle them to be ranked as *suborders*, rather than as families of the order, *Alcyonaria*.

This order as far as yet known is represented on the northern coast of New England, only by *Alcyonium carneum*, Agassiz† and the *Primnoa* now under consideration. A species of *Leptogorgia* is found in Long Island Sound, while farther south the representatives of the order become very numerous.

The only specimen of *Primnoa* known to have been previously found on our coast was presented to the Boston Society of Natural History, in Nov. 1860.‡ It was taken in

* On the arrangement of Zoophytes with Pinnated Tentacles, by Dr. J. E. Gray, *Annals and Magazine of Natural History*, 3d series, vol. 4, p. 439.

†On the structure of the Halcyonoid Polypi. By Louis Agassiz. *Proceedings of the American Association for the Advancement of Science*, 1860.

‡Proceedings of the Boston Society of Natural History, Vol. 7, p. 418.

eighty fathoms of water, in the Bay of Fundy, thirty miles southeast from Mt. Desert, and although somewhat larger, is not so perfect a specimen.

This is a highly interesting addition to our marine fauna, and it is desirable that additional specimens should be obtained.

The European species is said to grow to an immense size, sometimes even fifty or sixty feet high; but these accounts are probably somewhat exaggerated.

Mr. Putnam presented the casts of a head of a Flat-head Indian and Hottentot, from the Museum of Comparative Zoology at Cambridge. He then made a few remarks upon the geographical distribution of animals, and pointed out the limitation of the Faunæ, with particular reference to that of New England.

The Chairman, Mr. Huntington, then stated that it might not be generally known to the meeting that during the present week, there would occur an interesting anniversary, namely, that of the ordination of the first missionaries to foreign parts, which took place at the Tabernacle church, in this city, February 6, 1812. He stated that as the son of the Rev. Dr. Samuel Worcester, who took a prominent part in the ceremonies and services of that occasion was present, he might say something of interest in reference to the subject.

Rev. Dr. Samuel M. Worcester then replied, giving a brief but interesting notice of some of the prominent leaders in the missionary enterprise, and speaking of the immense amount of good that had been accomplished by the movement, not merely in an evangelical point of view, but in reference, also, to philosophy and science.

The following donations received since the last meeting were then announced :

ESSEX INST. PROCEED. VOL. iii. '17.

To the Library—from American Antiquarian Society; Wm. P. Tucker of Bowdoin College; E. E. Chever; Boston Society of Natural History; S. A. Lord of South Danvers; Mass. Legislature; Henry M. Brooks.

To the Cabinets—from John C. Chadwick; Wm. Hulin of Rockford, Illinois; E. E. Chever; Geo. F. Austin; C. H. Norris; A. C. Goodell, Jr.; Samuel F. Nichols; Mrs. F. M. Creamer.

Adjourned.

Monday, February, 17, 1862.

Meeting this evening, A. Huntington, President, in the chair.

In the absence of the Secretary, Mr. George D. Phippen was chosen Secretary, pro tem.

Records of preceding meeting read.

A letter was read from Sanborn Tenney, Esq., of Cambridge, relative to the delivery of a course of lectures in Salem, under the auspices of the Essex Institute, on the subject of Geology; which was referred to the appropriate Committee.

Rev. C. C. Beaman read a paper giving a geographical outline of Cape Cod, its discovery, the Indians resident upon it, its adaptation to their wants, sustenance from shell and other fish, deer and other game, geese and ducks, nuts, plums and berries, and the convenience of fresh water in ponds and springs, and of salt water in creeks, coves, bays and small inlets, passing to a description of the simple and happy life led by its original inhabitants before the white man came. The settlement by the whites was briefly narrated—the arrival from England in 1639, of the minister Lothrop, with a portion of his church, to take up their abode

in Cummaquid, now Barnstable ; of Rev. William Loveridge, with a number of families at Monomet (Sandwich,) and organizing a church in 1640 ; of Mr. Matthews at Yarmouth with others, nearly at the same time ; and Gov. Prince with a part of the Pilgrim church at Nauset (Eastham) in 1644.

The progress of the Cape in improvements, the social and hospitable character of its inhabitants, the number of ship-masters, their skill, education and integrity were portrayed. The fisheries and farming, the beauty of the villages, the distinguished merchants and professional men born in this region, and achieving for themselves honorable distinction in our great cities, and the importance of this portion of our territory for the harbors on Massachusetts Bay, and for raising up seamen to enrich the nation in peace and protect it in war, came under consideration.

Rev. Joseph B. Felt followed with remarks upon the aboriginal inhabitants of the Cape, and the remarkable distemper that had, a few years previous to its settlement, nearly depopulated the region round about, resembling, in many respects, the yellow fever. He also alluded to the idolatry of the Indians and of the difficulty that the missionary Elliot had to contend with on that account.

Rev. S. M. Worcester, who had been invited to prepare a paper upon the early founders of the American Foreign Missionary Society, declined to do so, saying that the subject had been already thoroughly prepared, and that any questions that might arise would be fully answered by consulting the pages of a book which he now presented to the Institute, just published (1862,) in Boston—"The Memorial Volume of the First Fifty Years of the American Board of Commissioners for Foreign Missions." He remarked that John Elliot derived a large portion of encouragement and pecuniary support from the contributions of christian friends at home in England. He also spoke of the avowed

idolatry of the Indians, of which there is abundant proof, but which has been often overlooked or misstated by writers upon the character of the Indians.

A. C. Goodell, Esq., and Rev. Mr. Felt, continued a discussion of the paper read by Rev. Mr. Beaman, more particularly in relation to the early pirates that infested these shores, such as Capt. Kidd and John Quelch, and of the thorough manner in which the Earl of Bellamont suppressed this nefarious outlawry.

After a vote of thanks for the paper which had afforded so much information, the President concluded the discussion of the evening by remarks tending to clear the skirts of Massachusetts from the implication of interest or connivance with the buccaneers. He also alluded to prominent men who first saw the light of day on that barren Cape, if barren it could be considered while so fruitful in the sterling patriotism of its sons.

Adjourned.

Monday, March 10, 1862

Meeting this evening, A. Huntington, President, in the chair.

Records of preceding meeting read.

A. E. Verrill, of the Museum of Comparative Zoology at Cambridge, being introduced to the meeting, spoke of the structure of corals and of the polyps producing them, and gave a history of our knowledge of them.

The class of polyps is now divided by naturalists into two principal groups or orders. The first of these orders, called *Actinoid Polyps* or *Zoantharia*, may be distinguished by having a varying number of *simple cylindrical tentacles*. The number varies from twelve to several hundred, but is almost

always some multiple of six. These tentacles increase in number by the introduction of new ones between those first formed, in a very regular way and according to very beautiful laws. The common Sea Anemones, or Actinias, belong to this order, but they never produce corals. Those kinds, by which the corals that are porous and consist of limestone, are formed, resemble the Actinias very much, but deposit limy matter in their sides and internal membranes and only the upper parts of their bodies and their tentacles remain soft and flexible. The coral itself is a complete internal skeleton of the polyp that forms it.

These polyps may be very minute or they may be several inches or even a foot in diameter. Some, like the *Fungia*, remain always simple and free, but others adhere to rocks or other solid substances. Other kinds develop buds upon their sides or other parts, and these buds soon become perfect individuals, but generally remain connected with the parent polyps so as to form clumps or masses. The star-corals (*Astrea*) and the common branching corals (*Madrepora*) are formed in this way. Again, some species, when they have reached a certain size, begin to widen and finally divide in the centre, so as to form two distinct individuals with two mouths, two stomachs and two sets of tentacles, from what was before one individual. In some cases the separation remains incomplete, and the polyps are united in long series. Corals of this kind generally form large solid masses and are among the most important of the reef-building species. The common Brain Coral (*Meandrina*) is a good example of this kind.

The next order, called *Halcyonoid Polyps* or *Alcyonaria*, have always *eight* tentacles and these are always *compound* or lobed along the sides. These also may be soft and produce no coral or they may form corals, but never such ones as are produced by the Actinoids. Some of them produce solid calcareous corals without pores or cells, but such corals serve merely as a support for the polyps which are situated in a soft external crust and secrete the solid coral from their inner membranes. The well known *Red Coral* is formed in this way. Other kinds, such as the Gorgoniæ or "Sea Fans" and "Sea Plumes" form solid interior corals resembling horn, and are generally dark colored, but the crust that covers them and in which the polyps are situated is gener-

ally friable and brilliantly colored, so that these kinds of corals often resemble bright colored sea weeds. The curious red coral called *Tubipora* belongs to this order, and also the singular "Sea Pens" (*Pennatula*) and the strange *Renilla* found on our southern coast, and many other allied forms.

The red coral used for ornaments, (*Corallium rubrum*) seems to have been known in very ancient times, but the first naturalist who mentioned it was Theophrates a disciple of Aristotle. By him it was thought to be a mineral substance formed in some unknown manner at the bottom of the sea. Ovid alludes to them as plants that are soft while in the water, but hard when dry. Pliny also considered them as plants, and mentioned several other kind, among them *Gorgonia* and *Antipathes*. From the time of Pliny there was but little advance in the study of corals until the sixteenth century, when they were studied by the leading botanists of that period. Lobel in 1576 gave figures of six species found in the Mediterranean. In 1605 Clusius figured and described among the marine plants, several foreign species of corals. Several other botanists of this period added others to the species already known. The works of Ferrate Imperato published at Naples were very important. Rumphius during a long residence in Amboina, studied the corals of that island and made excellent drawings of them, but his great work (*Herbarium Amboinense*) was not published until after his death, in 1705. He had previously, in 1684, expressed some doubts in regard to the vegetable nature of the corals, and spoke of their relation to Actinias and starfishes, but he gave no proof of their animal nature, and his views passed unnoticed. In the beginning of the eighteenth century the corals were universally considered as plants, and placed among the plants without flowers. The first naturalist who studied corals in the living state, was Boccone, but he failed to perceive their true nature, though he ascertained many important facts. He learned that it was covered when living in the sea with a soft crust, but that the coral itself was hard. He opposed the idea of their vegetable nature but considered them mineral concretions. His work was published in 1671. Marsilli in 1707 announced the discovery of the *flowers* of the coral, but Shaw in 1727 considered the polyps that he had observed on their surface, as roots.

Reaumer in 1727 wrote a treatise on corals, in which he considered them as plants and opposed the ideas of an observer, whose name he withheld, that they were animals. This observer was Peyssonnel who first studied corals on the coast of Barbary, and afterwards at the island of Guadaloupe, He made many very careful experiments on the coral polyps in a living state, and in a paper communicated to the Royal Society of London, in 1751. he fully established their animal nature and showed their relation to the Actinias, which had long been considered as animals. This paper, however, was never published entire. Reaumer became finally convinced that he was right, but considered that the hard corals were built by the polyps, as bees build their cells ;—an idea which still lingers in some of the popular text books. The discoveries of Peyssonnel made a complete revolution in the study of corals. Ellis also in 1754, proved the animal nature of the hydroid polyps ; like *Sertularia*. From this time writers on polyps became numerous. In the beginning of the present century Lamark, Oken, Lamouroux and Cuvier in their works, brought something of system into the classification of polyps, but still their classifications were unnatural because they united all those polyps that produce hard corals into one group, and those that always remain soft into another. In 1828 Milne Edwards and Audouin made an elaborate study of the anatomy of the polyps, and established the two natural orders determined by the number and structure of the tentacles. The intimate relation between the Actinias and coral polyps, had however been well shown by Charles A. Lesueur in a paper, accompanied by excellent plates, published in the Journal of the Philadelphia Academy in 1817.

Among the numerous works published during the past twenty-five years, the magnificent work of Prof. J. D. Dana, of New Haven, on the Zoophytes of the U. S. Exploring Expedition, under Capt Wilkes, deserves particular notice. This work is accompanied by a large number of excellent plates of the coral polyps drawn from life. This work was published in 1846.

About this time a series of monographs of various families of corals were commenced by Milne Edwards and Jules Haime. These appeared at various times, from 1845 to 1855, and in 1857 the work entitled *Histoire Naturelle des Coralliaires* was published. This is a complete work on the

whole class of polyps, both recent and fossil, and must remain the standard work on this class for many years. It appeared under the name of Milne Edwards alone, M. Haime having died in 1856, but his cooperation in the preparation of the work is fully acknowledged in the preface.

Since these careful researches of Milne Edwards and Haime have been published, it may be stated that the polyps are known about as thoroughly as any other class.

A. E. Verrill presented the following catalogue of the birds found at Norway, Maine, containing notes on each species, such as their relative abundance, the season of the year when found, the time of arrival in spring, and when possible, the time of laying the eggs.

CATALOGUE OF THE BIRDS FOUND AT NORWAY, OXFORD Co.,
MAINE.

BY A. E. VERRILL.

In the preparation of the following catalogue I have endeavored to give a correct idea of the ornithology of a single locality, but do not offer it as a complete enumeration of all the species that may be found there. It is indeed quite probable that several additional species of the smaller birds, such as Warblers, and Sparrows may be not uncommon, and that various others may be occasionally found as rare or accidental visitors. But it seems to me much more important in the study of the geographical distribution of birds, to know the common and most characteristic birds of any region and their relative abundance, than to know every species found there without knowing which are common and which rare or merely accidental. It is to be regretted that so many local lists have been published consisting merely of an enumeration of names with no indication of those that really belong to the region, in distinction from those that are mere stragglers, belonging properly in some other country. It is also very important to make a distinction between those that are resident at the locality during the whole year and those that are migratory and found only at certain seasons; and among the migratory ones, those

that are found in summer, and breed, should be distinguished from those that breed further north and come to us only in winter, or in spring and fall during their migrations.

For these reasons I have added remarks after each species indicating its season and relative abundance as far as known to me, and also, when possible, the time of laying the eggs or of hatching the young. I regret that I have not been able to make these observations more complete, and would call the attention of our naturalists residing in the country to these important questions as offering a field for useful and interesting study. The time occupied in incubation also, is known for very few of our most common birds. Another interesting question, upon which I trust the present list will throw some light, is the determination of the boundaries between the Canadian Fauna and that of the Eastern United States, or Alleghanian Fauna.* Although many of our common birds range during the breeding season from Virginia, or even farther south, to Labrador, yet when we compare the birds of Canada or northern Maine, as a whole, with those of Massachusetts or any more southern locality, we find them very different. Many of the most common Canadian summer birds visit us only in winter, or are seen only during their passage to and from a still more southern climate, and other species that reside there during the whole year are never seen, except in rare instances, farther south than Northern New England.

Among the first, I will mention for examples the common Blue Snow Bird, Pine Finch, Canada Jay, White-winged Crossbill, Pine Grosbeak, Black-poll Warbler, Fox-colored Sparrow and many kinds of Ducks and Waders. Among the resident birds of Canada, the Spruce Partridge, Ptarmigan, Hawk Owl, and Black Three-toed Woodpecker are examples. On the contrary, many of our common species do not breed in Canada or are rare there except in some peculiar localities, while other species that are abundant here become less common northward and are gradually replaced by allied species having similar habits, though not always belonging to the same genera.

* The term "Alleghanian Fauna" was applied in 1853 to the fauna of the middle and Eastern States, by Prof. L. Agassiz, in "A Sketch of the Natural Provinces of the Animal World and their Relation to the different Types of Man," in Nott and Glidden's "Types of Mankind."

There is still a great amount of uncertainty concerning the distribution and range of our smaller birds, although it is to these that we must chiefly look for the determination of Faunæ, but as far as my observations go the following appear to be instances of representation. The Towhee Bunting in the Alleghanian Fauna is represented by the Fox-colored Sparrow in the Canadian; the Grass Sparrow, by the Savannah; the Song Sparrow, in part by the White-throated; the Chipping Sparrow, in part by the Tree Sparrow and Blue Snow Bird; the Pine Warbler, by the Yellow Rump; the Prairie Warbler, by the Magnolia and Black Poll; Wilson's Thrush, by Swainson's Thrush. These are not however given with much confidence, since the observations have not yet been made sufficiently general. Many other more or less doubtful instances might be added, especially among the warblers and flycatchers, but much still remains to be done concerning these very interesting groups. It seems to be well established however that there are two distinct Faunæ as indicated above. The chief difficulty is to determine their boundaries. To me it seems best to take, as a guide in determining the northern limits of the Alleghanian Fauna, the most southern localities in which those birds peculiar to the Canadian Fauna commonly breed. The line thus established seems to separate the two Faunæ more distinctly than any other. The birds which have been most useful in this investigation, their habits being best known, are the Blue Snow Bird, Pine Finch, Canada Jay, Crossbills, Black-Poll Warbler, and Spruce Partridge. Whenever these breed abundantly in any region it may safely be considered as belonging to the Canadian Fauna. According to this arrangement the Adirondack region of New York, the northern parts of Vermont and New Hampshire, including most of the higher parts of the Green Mountains and all of the White Mountains, and even the summits of the higher Alleghanies, will be included in the Canadian Fauna. But the Alleghanian Fauna will extend northward into some parts of Canada West, about Lake Ontario, and along the valley of the St. Lawrence, perhaps as far as Montreal. In Maine the Canadian Fauna will embrace most of the northern portion of the state extending southward as far as the Umbagog Lakes in the western part. Concerning central and northeastern Maine I cannot speak with certainty, but

the coast region, from Mount Desert to Eastport, together with the islands in the Bay of Fundy, and the southeastern coast of New Brunswick, belong to the Canadian Fauna.

The central and southern parts of Nova Scotia however, are somewhat more southern in character.

It will doubtless be found that other animals, and perhaps plants, agree to a certain extent with the birds in their distribution. I have found that forests of Spruce and White Birch, so characteristic of the northern parts of New England, generally commence with the southern limits of the Canadian Fauna, yet most of the birds seem in no way dependent upon such forests, and many do not even frequent them.

The situation of Norway is about forty miles south of the Umbagog Lakes, and about the same distance north of Portland, yet the birds agree more nearly with those of Massachusetts than with those of the Umbagog region. It may be considered as very near the northern limit of the Alleghanian Fauna.

The notes and specimens that have served for the basis of the following list were obtained during a residence of several years at the locality, but I have also received much assistance and many specimens from my brothers, B. D. Verrill and G. W. Verrill, and from my friend Mr. Sydney I. Smith.

In this list I have followed the classification adopted by Prof. S. F. Baird in the General Report on the Birds of North America, (Explorations and Surveys for a Railroad Route from the Mississippi River to the Pacific Ocean, vol. ix.)

FALCO ANATUM, Bon. *Duck Hawk.* Spring and fall. Rare.

I have seen this species only during the migrations of the ducks in spring and fall. I have been informed by George A. Boardman Esq. of Milltown, Maine, that he has known it to breed on a cliff at Grand Menan.

F. COLUMBARIUS, Linn. *Pigeon Hawk.* Spring and fall. Rare. I have never succeeded in obtaining a specimen of this hawk at Norway, and have seen it only a few times. The species generally called "Pigeon Hawk" in New England is *Accipiter fuscus*.

F. CANDICANS, Gm. *Jer Falcon, "White Hawk."* Winter. Not uncommon. A white hawk probably of this

species is frequently seen during winter flying about extensive meadows near Norway, but they are very shy and watchful and I have never been able to procure a specimen.

F. SPARVERIUS, Linn. *Sparrow Hawk*. Spring and fall. Not very common. This species possibly breeds at Norway although I have never seen it there in summer.

ASTUR ATRICAPILLUS, Bon. *Goshawk*, "*Blue Hawk*." Resident. Common. Breeds. This is one of our most common hawks. When in the brown immature plumage it is usually confounded under the name of "*Hen Hawk*," with *Buteo borealis* and *B. lineatus*. It may always be distinguished readily from either, by its more slender form, relatively longer legs and tail, and shorter wings.

ACCIPITER COOPERII, Bon. *Cooper's Hawk*. Summer visitant. Not common.

A. FUSCUS, Bon. *Sharp-shinned Hawk*. Summer visitant. very common. Breeds. Arrives the last of March or first of April. The young are fully grown by the first of August.

BUTEO BOREALIS, Vieill. *Red-tailed Hawk*. "*Hen Hawk*." Summer visitant. Common. Breeds. Arrives about the middle of March. The eggs are laid about the middle of April.

B. LINEATUS, Jard. *Red-shouldered Hawk*. Summer visitant. Not very common. Breeds. The only eggs of this species that I have obtained at Norway were collected May 24th, 1860. The differences in size between specimens referred to this species from Florida, and those from Maine and other parts of New England, are very great, and may indicate a specific difference, although there is little or no difference in color. Nor would this be the only instance in this family where species, recognized as distinct, differ in no important character except size. This is particularly the case in the three North American species of *Accipiter*. I give below a table of comparative measurements taken from specimens in the Museum of Comparative Zoology at Cambridge, except the last one which is copied from measurements given in the General Report on the Birds of North America.

Locality and by whom collected	Norway, Me., E. D. Merrill, May 24, 1860.	Brookline, Mass., E. Cabot, March, 1861.	Maine.	Florida, G. Wurdemann, Aug. 1, 1868.	Florida, G. Wurdemann, April 6, 1868.	Florida, G. Wurdemann, April 31, 1867.
Length, - -	19 in.			15.50*	15.75*	17.50
Extent, - -	41.50			34.50*	35.75*	37.00
Wing, - - -	13.50	13.75	14.00	10.50	11.00	11.10
Tail, - - - -	9.00	8.50	9.00	7.30	7.25	
Tarsus, - -	3.20	3.00	3.20	2.80	2.70	
Leg from knee joint,	9.50		9.75	7.50	7.50	
Nature of specimen,	Alcoholic.	Skin.	Skin.	Skin.	Skin.	Skin.
Sex and number,	No. 608	309 ♀	310 ♀	young 680 ♀	681 ♂	8630 ♀

It is stated however by several excellent observers that the difference of size, in this, and several other species of hawks, is due to the effect of the climate, and, that intermediate forms exist in the Middle States. By Audubon they were considered distinct species, the northern form being called *Falco hyemalis*, Gm. He also states that they differ greatly in their habits. For the present therefore it may be well to consider the large northern form as a variety, applying to it the name, *Buteo lineatus*, var. *hyemalis*, Gm.

BUTEO PENNSYLVANICUS, Bon. *Broad-winged Hawk*. Summer visitant. Common. Breeds. A nest found June 12th, 1858, contained two eggs nearly hatched. This species is still more abundant near the Umbagog Lakes, and is apparently the most common Hawk in that vicinity.

*Measurements made from the specimens while fresh, by the collector.

- ARCHIBUTEO SANCTI-JOHANNIS**, Gray. *Black Hawk*. Winter visitant. Not common. This species is occasionally seen in autumn and winter. I have never met with *A. lagopus*, although it probably occurs.
- CIRCUS HUDSONIUS**, Vieill. *Marsh Hawk*. Summer visitant. Very common. Breeds. Arrives from the middle to the last of April. Lays generally six eggs in a nest on the ground. I have found young just hatched, June 9th, and others just beginning to fly, July 9th.
- AQUILA CANADENSIS**, Cassin. *Golden Eagle*. Winter. Rare.
- HALIAETUS LEUCOCEPHALUS**, Savigny. *White-headed Eagle*. Resident. Common. Breeds. Usually, but improperly called "Bald Eagle." I have been told by an old hunter, of an eagle of much larger size killed in this region, which may have been the little known "Washington Eagle" of Audubon.
- PANDION CAROLINENSIS**, Bon. *Fish Hawk*. Summer visitant. Not very common. Frequently seen about our lakes and rivers in summer, but I have never found it breeding in this vicinity. Arrives about the middle of April.
- BUBO VIRGINIANUS**, Bon. *Great Horned Owl*. "Cat Owl." Resident. Very common. Breeds. I have obtained the young of this species nearly half grown, but still covered with down, May 1st, 1857, from a nest in a tall, hollow pine. There were three young in the nest, one of which was considerably smaller than the other two. One of the latter, a male, is now alive at the Aquarial Gardens in Boston, and is in excellent plumage and of unusually large size, but has never shown any signs of gentleness or submission. I have obtained young just beginning to fly, June 8th. I have seldom found nests among the branches of trees.
- SCOPS ASIO**, Bon. *Mottled Owl*, *Red Owl*, *Screech Owl*. Resident. Common. Breeds.
- OTUS WILSONIANUS**, Les. *Long-eared Owl*. Resident. Common. Breeds. This species is quite common, especially in autumn.

- The *Short-eared Owl* (*Brachyotus Cassinii*) probably also occurs, but I have never obtained any specimens.
- SYRNIUM CINEREUM, Aud. *Great Gray Owl*. Winter visitant. Very rare.
- S. NEBULOSUM, Gray. *Barred Owl*. Resident. Common. Breeds.
- NYCTALE ACADICA, Bon. *Saw-whet Owl, Little Owl*. Resident. Common. Breeds.
- NYCTEA NIVEA, Gray. *Snowy Owl*. Winter visitant. Not common. This species is very gentle and becomes tame very readily in confinement, differing greatly in this respect from the Great Horned Owl.
- SURNIA ULULA, Bon. *Hawk Owl*. Autumn and winter. Common. This species is quite common from the first of November to the middle of March. I have never seen it in summer.
- COCCYGUS AMERICANUS, Bon. *Yellow-billed Cuckoo*. Summer visitant. Not common. I have never found nests of this species at Norway, although it probably breeds there.
- C. ERYTHROPHthalmus, Bon. *Black-billed Cuckoo*. Summer visitant. Common. Breeds. Much more common than the last. Have not observed it before the 20th of May.
- PICUS VILLOSUS, Linn. *Hairy Woodpecker*. Resident. Very common. Breeds.
- P. PUBESCENS, Linn. *Downy Woodpecker*. Resident. Very common. Breeds. The young remain in the nest until the last of July or first of August, and are then fully grown.
- PICOIDES ARCTICUS, Gray. *Black-backed Three-toed Woodpecker*. Spring, fall and winter. Very common. This species is abundant from the middle of October to the middle of March. Have never seen it here in summer.
- SPHYRAPICUS VARIUS, Baird. *Yellow-bellied Woodpecker*. Summer visitant. Common. Breeds. Arrives about the middle of April. This is the true "Sap Sucker" which injures apple trees, though the Downy Woodpecker is too often unjustly punished for it.

- HYLATOMUS PILEATUS**, Baird. *Pileated Woodpecker, Black Woodcock*. Resident. Common. Breeds. Most common in winter.
- MELANERPES ERYTHROCEPHALUS**, Sw. *Red-headed Woodpecker*. Summer visitant. Rare.
- COLAPTES AURATUS**, Sw. "*Yellow Hammer*." Summer visitant. Very common. Breeds. Generally arrives the last of March. Eggs laid the last week in May.
- TROCHILUS COLUBBIS**, Linn. *Humming Bird*. Summer visitant. Common. Breeds. Arrives about the middle of May.
- CHAETURA PELASGIA**, Steph. *Chimney Swallow*. Summer visitant. Abundant. Breeds. Arrives the second week in May.
- ANTROSTOMUS VOCIFERUS**, Bon. *Whip-poor-will*. Summer visitant. Common. Breeds. Arrives May 3d to 20th. The eggs are laid the first of June.
- CHORDEILES POPETUE**, Baird. *Night Hawk*. Summer visitant. Common. Breeds. Arrives the last of April. Eggs laid early in June.
- CERYLE ALCYON**, Boir. *Belted King Fisher*. Summer visitant. Common. Breeds. Sometimes seen in winter, but not numerous until the middle of April. Have found the eggs in March.
- TYRANNUS CAROLINENSIS**, Baird. *King Bird*. Summer visitant. Very common. Breeds. Arrives about May 10th. Eggs are laid the first week in June.
- MYIARCHUS CRINITUS**, Cab. *Great Crested Flycatcher*. Summer visitant. Rare.
- SAYORNIS FUSCUS**, Baird. *Pewee*. Summer visitant. Common. Breeds. Often seen as early as the first of March, and becomes common by the first of April. Very irregular in its time of nesting. The young are generally hatched the last of May.
- CONTOPUS BOREALIS**, Baird. *Olive-sided Flycatcher*. Summer visitant. Not very common. Probably breeds. Not observed before the 20th of May. This species is

quite common at the Umbagog Lakes.

C. VIRENS, Cab. *Wood Pewee*. Summer visitant. Common. Breeds. Arrives the last of May. Much less common than in Massachusetts.

EMPIDONAX TRAILLI. Baird. *Traill's Flycatcher*. Summer visitant. Not common. Arrives the third week in May.

E. MINIMUS. Baird. *Least Flycatcher*. Summer visitant. Common. *Breeds. Arrives about the middle of May.

E. FLAVIVENTRIS, Baird. *Yellow-bellied Flycatcher*. Summer visitant. Not very common. The only specimens procured were shot from the last of May to the middle of June.

TURDUS PALLASII, Cab. *Hermit Thrush*. Summer visitant. Very common. Breeds. This is the most common Thrush except the Robin. The nest is built upon the ground. The eggs, four in number, are rather oblong and bright blue. Arrives April 16th to 25th. The eggs are laid the last of May.

T. FUSCESCENS, Steph. *Wilson's Thrush*. Summer visitant. Not common. Breeds. Builds its nest upon the ground. Eggs light blue.

T. SWAINSONII, Cab. *Olive-backed Thrush*. Summer visitant. Rare. More common northward. I have never found this species breeding at Norway. The nest is built in low trees or bushes. The eggs are bluish-green spotted with light brown.

T. MIGRATORIUS, Linn. *Robin*. Summer visitant. Very abundant. Breeds. Arrives the last of March. Eggs are laid the second week in May.

SIALIA SIALIS, Baird. *Blue Bird*. Summer visitant. Very common. Breeds. Generally arrives the last week in March. The eggs are often laid the third week in April. Sometimes remains till the middle of October.

REGULUS CALENDULA, Licht. *Ruby-crowned Wren*. Spring and fall. Sometimes very common in May. Arrives in spring about the 20th of April. Common in fall the last of October and first of November.

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R. SATRAPA, Licht. *Golden-crested Wren*. Spring and fall. Not very common. According to Mr. S. I. Smith a few remain during summer in the dense cedar swamps and probably breed. Arrives in spring about the 20th of April. In fall, common from the last of October to December.

MNIOTILTA VARIA, Vieill. *Black and White Creeper*. Summer visitant. Not common. Breeds.

PARULA AMERICANA, Bon. *Blue Yellow-backed Warbler*. Summer visitant. Not common. Breeds. Not observed before the 20th of May.

GEOTHLYPIS TRICHAS, Cab. *Maryland Yellow Throat*. Summer visitant. Very common. Breeds. Arrives about the middle of May. The eggs are laid the last of May or first of June.

The Mourning Warbler (*G. Philadelphia*) will probably be found, but I have not observed it.

HELMINTHOPHAGA RUFICAPILLA, Baird. *Nashville Warbler*. Summer visitant. Rare. Arrives the second week in May. Sometimes common in spring.

The Tennessee Warbler (*H. peregrina*) will probably be found as a rare species.

SEIURUS AUROCAPILLUS Sw. *Golden-crowned Thrush*. *Oven Bird*. Summer visitant. Common. Breeds. Arrives early in May.

S. NOVEBORACENSIS, Nutt. *Water Thrush*. Summer visitant. Not very common. A nest, found June 8, 1861, in a dense cedar swamp, was built in an excavation in the side of a decayed moss covered log, so that the excavation itself formed an arch over the nest, instead of one made by the bird, as in the preceding species. The nest was constructed of moss and lined with fine roots. The five eggs, were of a delicate flesh color, spotted with light reddish brown. Arrives the first of May.

DENDROICA VIRENS, Baird. *Black-throated Green Warbler*. Summer visitant. Not common. Breeds. Arrives the second week in May.

D. CANADENSIS, Baird. *Black-throated Blue Warbler*. Summer visitant. Not common.

- D. CORONATA**, Gray. *Yellow-rumped Warbler*. Spring and autumn. Very common. Not known to breed in this vicinity. Arrives the first week in May.
- D. BLACKBURNIÆ**, Baird. *Blackburnian Warbler*. Summer visitant. Not uncommon, but rarely seen on account of its habit of keeping concealed among the dense foliage. Breeds. Arrives the third week in May.
- D. CASTANEA**, Baird. *Bay-breasted Warbler*. Spring and fall. Rare. The only specimen obtained was shot by my brother, G. W. Verrill, in June.
- D. PENNSYLVANICA**, Baird. *Chestnut-sided Warbler*. Summer visitant. Rather common. Breeds. Arrives the second week in May.
- D. STRIATA**, Baird. *Black Poll Warbler*. Summer visitant. Not often seen at Norway in summer, but very common at the Umbagog Lakes.
- D. ÆSTIVA**, Baird. *Yellow Warbler*, often called *Summer Yellow Bird*. Summer visitant. Very common. Breeds. Arrives about the middle of May. The eggs are laid the first week in June.
- D. MACULOSA**, Baird. *Magnolia Warbler*. Spring and fall. Not common. One specimen was shot in June. Not known to breed here.
- The Cape May Warbler, (*D. tigrina*) will probably be found as a rare bird.
- D. PALMARUM**, Baird. *Yellow Red-poll Warbler*. Spring and fall. Common. Arrives about the middle of April, earlier than any other Warbler. Possibly a few may remain and breed. Common the last of September and first of October, leaves about the middle of October.
- MYIODIOTES PUSILLUS**, Bon. *Wilson's Black-cap Flycatcher*. Summer visitant. Not common. The only specimen obtained at Norway was shot by Clarence M. Smith, in June.
- M. CANADENSIS**, Aud. *Canada Flycatcher*. Summer visitant. Common. Breeds. Arrives about the middle of May.
- SETOPHAGA RUTICILLA**, Sw. *Red Start*. Summer visitant. Common. Breeds. Arrives about the middle of May.

- PYRANGA RUBRA**, Vieill. *Scarlet Tanager*. Summer visitant. Rare.
- HIRUNDO HORREORUM**, Barton. *Barn Swallow*. Summer visitant. Abundant. Breeds. Arrives April 22d to May 1st.
- H. LUNIFRONS**, Say. *Eaves Swallow, Cliff Swallow*. Summer visitant. Abundant. Breeds. Arrives early in May. The eggs are laid the first of June.
- H. BICOLOR**, Vieill. *White-bellied Swallow*. Summer visitant. Common. Breeds. Arrives by the middle of April. Generally nests in "Martin Houses," or in sheltered places about the eaves of buildings.
- COTYLE RIPARIA**, Boie. *Bank Swallow*. Summer visitant. Abundant. Breeds. Arrives the second week in May. The eggs are laid the first week in June.
- FROGNE PURPUREA**, Boie. *Martin*. Summer visitant. Abundant. Breeds. Arrives the last week in April. Sometimes a few come a little earlier.
- AMPELIS CEDBORUM**, Baird. *Cedar Bird*. Summer visitant. Abundant. Breeds. Sometimes seen as early as the first of March, but is quite irregular in its habits.
- COLLYRIO BOREALIS**, Baird. *Butcher Bird Shrike*. Autumn and winter. Common.
- VIREO OLIVACEUS**, Vieill. *Red-eyed Flycatcher*. Summer visitant. Very common. Breeds. Arrives about the middle of May.
- V. GILVUS**, Bon. *Warbling Flycatcher*. Summer visitant. Common. Breeds. Arrives the first of May.
- V. SOLITARIUS**, Vieill. *Blue-headed Flycatcher*. Summer visitant. Not very common. Breeds. Arrives during the second week in May.
- MIMUS CAROLINENSIS**, Gray. *Cat Bird*. Summer visitant. Very common. Breeds. Arrives May 15 to 20th. The eggs are laid the second week in June.
- HARPORHYNCHUS RUFUS**, Cab. *Brown Thrush*. Summer visitant. Common. Breeds. Arrives about the middle of May. The eggs are laid the first of July and perhaps earlier.

- TROGLODYTES ÆDON**, Vieill. *House Wren*. Summer visitant. Common. Breeds. Arrives about the middle of May.
- T. HYEMALIS**, Vieill. *Winter Wren*. Probably resident. Not common. I have seen it only in spring.
- T. AMERICANUS**, Aud. *Wood Wren*. Spring and fall. Not common. Possibly breeds.
- CERTHIA AMERICANA**, Bon. *American Brown Creeper*. Summer visitant. Not common. Breeds.
- SITTA CAROLINENSIS**, Gm. *White-bellied Nuthatch*. Resident. Common. Breeds.
- S. CANADENSIS**, Linn. *Red-bellied Nuthatch*. Resident. Very common. Breeds.
- PARUS ATRICAPILLUS**, Linn. *Chickadee*. Resident. Very common. Breeds. The eggs are laid in May. I have found young the first week in June.
- EREMOPHILA CORNUTA**, Boie. *Shore Lark*. Winter visitant. Not common.
- PINICOLA CANADENSIS**, Cab. *Pine Grosbeak*. Winter visitant. Very common.
- CARPODACUS PURPUREUS**, Gray. *Purple Finch*. Summer visitant. Common but much less abundant than near the Umbagog Lakes. Breeds. Arrives the first of April.
- CHRYSOMITRIS TRISTIS**, Bon. *Yellow Bird, Thistle Bird*. Summer visitant. Very common. Breeds. Arrives the second week in May. Remains till the first of November.
- C. PINUS**, Bon. *Pine Finch*. Spring and Autumn. Common. Not observed breeding at Norway, but found very common near the Umbagog Lakes in July, evidently breeding. Breeds, also, among the White Mountains, where it is very common.
- CURVIROSTRA AMERICANA**, Wils. *Red Crossbill*. Spring and summer. Common.
- C. LEUCOPTERA**, Wils. *White-winged Crossbill*. Winter visitant. Common.
- ÆGIOTHUS LINARIA**, Cab. *Red Poll Linnet*. Fall, winter and spring. Very common. Most abundant in March and April.
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- PLECTROPHANES NIVALIS**, Meyer. *Snow Bunting, White Snow Bird.* Winter visitant. Common.
The Lapland Longspur (*P. lapponicus*) will also undoubtedly be occasionally met with, in winter.
- PASSERCULUS SAVANNA**, Bon. *Savannah Sparrow.* Summer visitant. Common. Breeds. Arrives April 15th to 20th. The eggs are usually laid by the middle of May.
- POECETES GRAMINEUS**, Baird. *Grass Finch.* Summer visitant. Common. Breeds. Arrives about the middle of April. The eggs are laid the first of June.
- ZONOTRICHIA LEUCOPHRYS**, Sw. *White-crowned Sparrow.* Spring and fall. Rare.
- Z. ALBICOLLIS**, Bon. *White-throated Sparrow, "Peabody Bird."* Summer visitant. Common. Breeds. This beautiful sparrow, though quite common at Norway, is much more abundant near the Umbagog Lakes. Arrives about the middle of April.
- JUNCO HYEMALIS**, Sclat. *Blue Snow Bird.* Winter, spring and fall. Abundant. I have never found this bird breeding at Norway, but it is very common, and breeds, at the Umbagog Lakes and among the White Mountains.
- SPIZELLA MONTICOLA**, Baird. *Tree Sparrow.* Spring and fall. Common. Most abundant from the middle to last of April.
- S. PUSILLA**, Bon. *Field Sparrow.* Summer visitant. Common. Breeds. Arrives the last of April.
- S. SOCIALIS**, Bon. *Chipping Sparrow.* Summer visitant. Very common. Breeds. Arrives the first week in April. The eggs are laid the last of May.
- MELOSPIZA MELODIA**, Baird. *Song Sparrow.* Summer visitant. Very common. Breeds. Arrives March 18 to 30th. The eggs are laid about the middle of May.
- M. PALUSTRIS**, Baird. *Swamp Sparrow.* Summer visitant. Not common. Breeds.
- PASSEBELLA ILIACA**, Sw. *Fox-colored Sparrow.* Spring and fall. Common.
- GUIRACA LUDOVICIANA**, Sw. *Rose-breasted Grosbeak.* Summer visitant. Not common.

- CYANOSPIZA CYANEA, Baird. *Indigo Bird*. Summer visitant. Common. Breeds. Arrives early in May.
- PIPILO ERYTHROPHthalmus, Vieill. *Towhee Bunting*. Summer visitant. Not common. Breeds. Arrives the first of May.
- DOLICHONYX ORYZIVORUS, Sw. *Bobolink*. Summer visitant. Very common. Breeds. Arrives about the middle of May. The eggs are laid early in June.
- MOLOTHRUS PECORIS, Sw. *Cow Blackbird*. Summer visitant. Common. Breeds. Arrives usually the first week in April.
- AGELÆUS PHENICEUS, Vieill. *Red-wing Blackbird*. Summer visitant. Very common. Breeds. Arrives March 20th to April 4th. The eggs are laid the last of May.
- ICTERUS BALTIMORE, Daud. *Baltimore Oriole*. Summer visitant. Common. Breeds. Arrives from the first, to the middle of May.
- SCOLECOPHAGUS FERRUGINEUS, Sw. *Rusty Blackbird*. Spring. Common. Arrives before the middle of April.
- QUISCALUS VERSICOLOR, Vieill. *Crow Blackbird*. Summer visitant. Common. Breeds. Arrives the last of March or first of April.
- CORVUS AMERICANUS, Aud. *Common Crow*. Resident. Very abundant. Breeds. Not often seen in midwinter. The eggs are laid at various times from April to June. I have found young nearly large enough to fly May 25th, and eggs at the same time.
- C. CARNIVORUS, Bart. *American Raven*. Accidental. Very rare.
- CYANURA CRISTATA, Sw. *Blue Jay*. Resident. Abundant. Breeds. Not often seen in midwinter. Becomes abundant by the middle of March.
- PERISOREUS CANADENSIS, Bon. *Canada Jay*. Winter visitant. Common.
- ECTOPISTES MIGRATORIA, Sw. *Wild Pigeon*. Summer visitant. Common. Breeds. Arrives from the 7th of April to the 4th of May.

- TETRAO CANADENSIS**, Linn. *Spruce Partridge*. Accidental and very rare at Norway, but a common resident near the Umbagog Lakes.
- BONASA UMBELLUS**, Steph. *Ruffed Grouse*, "*Partridge*." Resident. Very common. Breeds. The drumming of the male, I have heard from the 10th of April to the 7th of June. The young are hatched about the first of June.
- ARDEA HERODIAS**, Linn. *Great Blue Heron*. Summer visitant. Common. Breeds in cedar swamps abundantly. There are generally several nests in a tree. Arrives the last of March or first of April.
- BOTAURUS LENTIGINOSUS**, Steph. *Bittern*, "*Stake Driver*." Summer visitant. Common. Breeds. Arrives early in May, perhaps earlier.
- CHARADRIUS VIRGINICUS**, Borck. *Golden Plover*. Autumn. Common.
- PHILOHELA MINOR**, Gray. *American Woodcock*. Summer visitant. Not common. Breeds.
- ACTODROMAS MACULATA**, Cassin. *Jack Snipe*. Autumn. Not common. One specimen obtained and several others seen.—S. I. Smith.
- GAMBETTA MELANOLEUCA**, Bon. *Tell Tale*. Summer visitant. Not common.
- G. FLAVIPES**, Bon. *Yellow Legs*. Summer visitant. Not common; Have seen this, or the preceding, species about the Umbagog Lakes in summer, where it probably breeds in small numbers.
- RHYACOPHILUS SOLITARIUS**, Bon. *Solitary Sandpiper*. Summer visitant. Not very common. It is doubtful whether it breeds here. Arrives the first of May or earlier.
- TRINGOIDES MACULARIUS**, Gray. *Spotted Sandpiper*. Summer visitant. Very common. Breeds. Arrives the first of April.
- ACTITURUS BARTRAMIUS**, Bon. *Field Plover*. Summer visitant. Common. Breeds. Arrives in April. The eggs are laid about the first of June.

- FORZANA CAROLINA, Vieill. *Common Rail*. Summer visitant. Not common.
- BERNICLA CANADENSIS, Boie. *Wild Goose*. Spring and fall. Common.
- B. BEENTA, Steph. *Brant*. Spring and Fall. Common.
- ANAS BOSCHAS, Linn. *Mallard*. Spring and fall. Rare.
- A. OBSCURA, Gm. *Black Duck*. Summer visitant. Common. Breeds. Arrives the last of March or first of April. The young are hatched during the latter part of June. The eggs are often laid before the middle of May.
- QUERQUEDULA DISCORS, Steph. *Blue-winged Teal*. Spring and fall. Common.
- AIX SPONSA, Boie. *Wood Duck*. Summer visitant. Common. Breeds.
- FULIX AFFINIS, Baird. *Black-headed Duck*. Spring and fall. Not common.
- F. COLLARIS, Baird. *Ring-necked Duck*. Spring and fall. Not common.
- AYTHYA AMERICANA, Bon. *Red-headed Duck*. Spring and fall. Rare.
- BUCEPHALA AMERICANA, Baird. *Golden Eye*, "*Whistler*." Spring and fall. Common. Sometimes seen in midwinter.
- B. ALBEOLA, Baird. *Buffel Head*. Spring and fall. Common.
- HARELDA GLACIALIS, Leach. *Old Squaw*. Spring and fall. Not common.
- PELIONETTA PERSPICILLATA, Kaup. *Surf Duck*. Spring fall. Rare.
- MERGUS AMERICANUS, Cass. *Sheldrake*. Spring and fall. Common.
- M. SERRATOR, Linn. *Red-breasted Sheldrake*. Spring and fall. Not common.
- LARUS ARGENTATUS,* Brunn. *Herring Gull*. Accidental. Often seen about our rivers and lakes in summer.

* Since this was written, the American Herring Gull has been separated from the European, under the name of *Larus Smithsonianus*, by Mr. Elliott Coues. (See Proc. Phil. Acad. Nat. Sc. 1862, p. 296.)

CHRECOCEPHALUS PHILADELPHIA, LAWT. *Bonaparte's Gull.*
 Spring and fall. Not common. Often seen about our rivers and lakes, and can hardly be considered as accidental.

A specimen in immature plumage shot Aug. 10, 1858 is remarkable for the shortness and slenderness of its bill even when compared with other specimens shot at the same season, but as in other species of gulls the bill is a long time in reaching its full length, this may be due merely to age. In this specimen the head and neck are white with a broad patch of grayish slate on the upper and posterior part of the head and a roundish spot of slate below and posterior to each eye. This spot is formed by the dark tips of the auriculars. The back and greater wing coverts are light grayish blue, but this color is nearly concealed on the back between the shoulders and on the scapulars by the brownish tips of the feathers, each of these being edged and broadly tipped with yellowish white and below this with brown; some of the lesser coverts are of the same color, but those near the bend of the wing are dark slate.

The primaries are all tipped with black for about an inch and this color extends along the whole length of the outer and part of the inner webs of the two first primaries, and along the greater part of the outer web of the third; the other primaries, with the extreme tips of all except the two first, are light bluish gray; the rump, tail coverts, and greater part of the tail, pure white; the tail is crossed at the end by a band of black three-fourths of an inch wide, the extreme tips of the tail feathers being white. All the under parts pure white, except the sides of the breast where there is a patch of very light brown; bill light brown at the base, darker at the end; legs and feet very light yellow without any tinge of the orange-red seen in those of the adult. The bill is slender, slightly curved at the end, and without the notch seen in that of the mature bird.

Comparative Measurements.

	No. 146	No. 173
Length (fresh specimens) - - - -	14 in.	13.50
Extent of wings, - - - -	88	81.50
Wing, - - - -	10.50	10.25
Tarsus, - - - -	1.80	1.28
Middle toe, - - - -	1.42	1.40
Head and bill, - - - -	8.00	2.70
Bill along top, - - - -	1.30	1.00
Bill from feathers of side of upper mandible,	1.05	.84
Bill from do., of lower mandible, -	1.30	1.00
Bill from the nostrils, - - - -	.67	.52
Bill from prominence of the lower mandible,	.50	.35
Width of bill (opposite feathers of the side)	.24	.16

No. 146 is a full plumaged male shot in May..

No. 173 is the young specimen described above.

COLYMBUS TORQUATUS, Brunn. *Loon. Northern Diver.* Summer visitant. Very common. Breeds. Arrives about the middle of April. The eggs are laid about the middle of June and sometimes later. Young are hatched the first week in July.

C. ARCTICUS, (?) Linn. *Black-throated Diver.* A specimen in immature plumage shot May 6th, 1858, agrees very closely with Audubon's description of the young of this species, but seems to be rather the young of *C. torquatus*. I have never obtained an undoubted specimen of *C. arcticus*.

PODICEPS CORNUTUS, Lath. *Horned Grebe.* Spring and Fall. Not common.

PODYLIBUS PODICEPS, Lawr. *Water Witch.* Spring and fall. Common. It is possible that this species breeds here, but I have never seen it in summer.

BIRDS FOUND IN MAINE NOT OBSERVED AT NORWAY.

In order to render the foregoing catalogue more complete and valuable for comparison, the following list of additional species, that have been found in other parts of the state, is added. They belong principally to three classes,—1st, those that frequent the seacoast exclusively, either in summer or winter, or during their migrations,—2d, those that belong farther south and only come into the extreme southwestern part of the state, or *occasionally*, farther northward,—3d, those that are accidental visitors from other regions. Besides these there are a few that undoubtedly occur at Norway but have been overlooked, and some that visit the more northern parts of Maine from the arctic regions in winter.

When I have not myself observed the species in the state, I have added the name of the person who has made the observations, and in case there are several, the one who has made them the most recently. I have intentionally omitted several species that have been attributed to Maine, because I have no *direct information* concerning them.

Cathartes aura, Ill. Accidental.—G. A. Boardman.

Archibuteo lagopus, Gray. Winter; perhaps resident; not rare.

Brachyotus Cassinii, Brewer. Resident; not uncommon.

Nyctale Richardsons, Bon. Not common; perhaps resident northward.—G. A. Boardman.

Picoides hirsutus, Gray. Winter; not common. Calais, Me.—G. A. Boardman.

Anthus ludovicianus, Licht. Autumn; occasionally in flocks—G. A. Boardman.

Geothlypis Philadelphia, Baird. Waterville; in July with young.—Prof. C. E. Hamlin.

Helmitherus vermivorus, Bon. Summer; southern Maine; rare.

Helminthophaga peregrina, Cab. Very rare; Headwaters of the Penobscot in June.—W. H. Hall. *H. celata*, is also attributed to Nova Scotia by Audubon.

Dendroica pinus, Baird. Summer; rare.

Dendroica cærulea, Baird. Very rare.—J. J. Audubon.

- Dendroica tigrina*, Baird. Calais, Me.; in summer; rare.—G. A. Boardman.
- Ampelis garrulus*, Linn. Accidental in winter; rare.
- Vireo noveboracensis*, Bon. Very rare; summer.—J. J. Audubon.
- Vireo flavifrons*, Vieill. Summer; not common. Waterville in July.—Prof. C. E. Hamlin.
- Lophophanes bicolor*, Bon. Very rare.—J. J. Audubon.
- Parus hudsonicus*, Forster. Winter; not rare. Resident near Calais.—G. A. Boardman.
- Ægiothus canescens*, Cab. Winter; rare.
- Plectrophanes lapponicus*, Selby. Winter; rare.
- Coturniculus, passerinus*, Bon. Summer; rare.—G. A. Boardman.
- Guiraca cærulea*, Sw. Accidental; common in the spring of 1861 at Calais.—G. A. Boardman.
- Sturnella magna*, Sw. Southern Maine in summer; not common.
- Icterus spurius*, Bon. Southern Maine in summer; not common.
- Zenædura carolinensis*, Bon. Southern Maine; not common. Probably breeds.
- Lagopus albus*, Aud. Northern Maine in winter; rare.
- Ardetta exilis*, Gray. Southern Maine; rare.
- Butorides virescens*, Bon. Coast; common in summer.
- Nyctiardea Gardeni*, Baird. Summer; common; mostly near the coast; breeds in large numbers at Trenton, Maine.
- Ægialitis vociferus*, Cass. Coast in autumn; not common.
- Æ. melodus*, Cab. Coast in summer; abundant; breeds.
- Æ. semipalmatus*, Cab. Coast in autumn; abundant.
- Squatarola helvetica*, Cuv. Coast in autumn; not common.
- Strepsilas interpres*, Ill. Coast in autumn; rare.—G. A. Boardman.
- Recurvirostra americana*, Gm. Coast in spring; one instance.—G. A. Boardman.
- Himantopus nigricollis*, Vieill. Coast in spring; one instance.—G. A. Boardman.
- Phalaropus hyperboreus*, Temm. Bay of Fundy, as early at least as August; abundant in autumn; possibly breeds.
- Gallinago Wilsoni*, Bon. Summer; not rare near the coast; breeds.

- Macrorhamphus griseus*, Leach. Coast in summer and autumn.—G. A. Boardman.
- Tringa canutus*, Linn. Coast in autumn; common.
- Arquatella maritima*, Baird. Winter; abundant.—G. A. Boardman
- Ancylocheilus subarquatus*, Kaup. Coast in autumn; not common.—G. A. Boardman.
- Pelidna americana*, Coues. Coast in autumn; abundant.
- Actodromas minutilla*, Coues. Coast early in autumn; very abundant.
- A. Bonapartii*, Cass. Coast in autumn; common.
- Calidris arenaria*, Ill. Coast in summer; abundant.
- Ereunetes pusilla*, Cass. Coast in autumn; abundant.
- Symphemia semipalmata*, Hart. Coast in summer; no common.
- Philomachus pugnax*, Gray. Accidental; one or two instances.—G. A. Boardman.
- Limosa fedoa*, Ord. Coast in autumn; rare.
- Limosa hudsonica*, Sw. Coast in autumn and spring; not common.
- Numenius longirostris*, Wils. Coast in fall and spring; not very abundant.
- N. hudsonicus*, Lath. Coast in fall and spring; rare.
- N. borealis*, Lath. Coast in fall and spring; rare.—G. A. Boardman.
- Rallus virginianus*, Linn. Summer; not common; breeds.
- Fulica americana*, Gm. Coast in spring and fall; not uncommon.
- Anser hyperboreus*, Pall. Winter; very rare.
- Dafila acuta*, Jen. Winter on the coast; rare.
- Nettion carolinensis*, Baird. Fall and spring; frequent.
- Spatula clypeata*, Boie. Coast in autumn; rare.
- Chaulelasmus streperus*, Gray. Coast in spring and fall; rare.
- Mareca americana*, Steph. Spring and fall; rare.
- Fulix marila*, Baird. Spring and fall; very rare.
- F. affinis*, Baird. Spring and fall; more common than the last.
- Histrionicus torquatus*, Bon. Spring, fall, and winter; common on the coast.
- Camptolæmus labradorius*, Gray. Coast in winter; very rare.

- Melanetta velvetina*, Baird. Coast in winter ; common.
- Pelionetta perspicillata*, Kaup. Coast in winter ; common.
- Oidemia americana*, Sw. Coast in fall and winter ; frequent.
- Somateria mollissima*, Leach. Coast in fall, winter, and spring ; common ; a few breed on the islands in the Bay of Fundy.
- S. spectabilis*, Leach. Coast in winter ; rare.
- Erismatura rubida*, Bon. Coast in winter ; rare.
- Mergus serrator*, Linn. Coast in fall and winter ; common.
- Lophodytes cucullatus*, Reich. Coast in autumn ; rare ; a few breed in the northern part of the state.
- Pelecanus erythrorhynchus*, Gm. Accidental on the coast ; very rare.—G. A. Boardman.
- Sula bassana*, Briss. Coast in fall, winter, and spring ; very common.
- Phalacrocorax carbo*, Gray. Coast in winter ; common.
- Graculus dilophus*, Gray. Coast in winter ; not common.
- Thalassidroma Leachii*, Temm. Coast ; very common ; breeds abundantly on many of the islands along the coast, from Mount Desert to Grand Menan, and is much more numerous than any other Petrel.
- T. Wilsoni*, Bon. Coast ; not common. I have never found this species breeding.
- T. pelagica*, Bon. Off the coast ; rare.
- Puffinus major*, Bon. Coast ; common in fall, winter and spring.
- P. anglorum*, Temm. Coast ; common from August to spring.
- P. fuliginosus*, Strick. Coast ; common from August to spring.
- Stercorarius pomarinus*, Temm. Autumn and winter on the coast ; common.
- S. parasiticus*, Temm. Coast in winter ; common.
- S. cephus*, Lawr. Coast ; common from August to spring.
- Larus leucopterus*, Fabr. Coast in winter ; rare.
- Larus marinus*, Linn. Fall and winter ; not common. A few appear to breed on the islands in the Bay of Fundy.—G. A. Boardman.
- L. delewarensis*, Ord. Coast in fall and spring ; not common.
- Chroccocephalus atricillus*, Lawr. Resident on the coast ; a few breed on the islands ; not common.

- Rissa tridactyla*, Bon. Coast in autumn and winter; common.
- Sterna hirundo*,* Linn. (*S. Wilsoni*, Bon.) Coast in summer; common; breeds abundantly in some localities.
- S. macroura*, Naum. Common on the coast in summer; breeds abundantly on some islands.
- Thalasseus caspius*, Boie. Coast in winter; rare.
- Hydrochelidon fissipes*, Gray. (*H. plumbea*, Lawr.) Coast in autumn; not common.
- Colymbus septentrionalis*, Linn. Coast in winter; common.
- Podiceps Holbolli*, Reinh. (*P. griseigena* Auth.) Coast in winter; common.
- P. cristatus*, Lath. Summer visitant; breeds about lakes near Calais.—G. A. Boardman.
- Utamania torda*, Leach. Fall and winter on the coast; common; a few breed about the Bay of Fundy.
- Marmot arctica*, Ill. Resident on the coast; common; a few breed on the islands about Grand Menan.
- M. cirrhata*, Pall. Winter; rare.
- M. glaciulis*, Leach. Grand Menan.—Audubon. Very rare.
- Uria grylle*, Lath. Resident on the coast; abundant; breeds on rocky islands from Mount Desert eastward.
- Catarractes troille*, Bryant. Fall and winter on the coast; common; a few breed about the Bay of Fundy.
- C. ringvia*, Bryant. Fall and winter; common.
- C. lomvia*, Bryant. Fall and winter; rare.
- Mergulus alle*, Vieill. Winter; common.

MR. S. H. SCUDDER, of the Zoological School at Cambridge, being called upon, stated that he had been examining the collection of butterflies in the Museum of the Institute, a few of which he had brought in for examination. The collection was a valuable one, the specimens mostly Brazilian. He entered into some details of the structure of the wings of butterflies, and explained how the special arrangement and direction of the nervures afforded good characteristics in assisting the Naturalist to determine the affinities of these

*For a very complete revision of the Terns of North America, see A Review of the Terns of N. A. by Elliott Coues. Proc. Acad. Nat. Sc. of Phil. Dec. 1862, p. 535.

animals, and their groupings into families, genera &c., illustrating his remarks by the specimens exhibited. In closing, Mr. S. presented the following list of the butterflies of New England.

A LIST OF THE BUTTERFLIES OF NEW ENGLAND.

BY SAMUEL H. SCUDDER.

In the following list, I have made mention of every species of diurnal Lepidoptera of which I have seen specimens from New England; I enumerate eighty-one species; in the recent edition of Harris's Treatise on Insects injurious to vegetation fifty-four are mentioned; a portion of this difference is made up of those of which only a single individual or two have been seen, and are only occasionally found here, being more abundant to the southward; but there have been added also very many species which may properly be said to belong to the New England Fauna. Of such as are new, or have been confounded with others distinct from them, or have been incorrectly described, I have given short descriptions; these are mostly found among the Hesperidae, where also are to be found the principal additions to the number of our Butterflies in the recent edition of Dr. Harris's Treatise; whenever names are given different from those used in Harris's Treatise, I have given his as synonyms to avoid any confusion which might arise, and these are the only synonyms I have given, except in those cases where it was evidently necessary (e. g. *Hesperia Egeremet*). In all cases I have stated to the extent of my knowledge their comparative rarity or abundance, and have frequently mentioned whether they were more abundant in the northern or southern portion of New England. I have endeavored also to place in a succinct form what knowledge of each species we yet possess as to the haunts of the imago, the number of broods each year, their times of appearance, and the food-plant of the larva; this is given rather to stimulate further detailed enquiry by showing the paucity of our knowledge, than as any material addition to what has heretofore been published; with the hope that it may render some service in this direction it is offered to the Institute for publication.

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1. **PAPILIO ASTERIAS** Drury. Open Fields and upon flowers; common; there are two broods each year, the first appearing in early June, from the eggs of which the caterpillars are hatched, which are the young of those appearing early in August, but as the perfect insects are long-lived, they may be found nearly the whole summer long; the larva feeds upon parsley and other umbelliferæ.
2. **PAPILIO TROILUS** Linn. Skirts of woods; not common; there are probably two broods of this species, appearing about the same time as the preceding; they are found from June to October; larva feeds on *Laurus*, *Sassafras*, *Lilac*.
3. **PAPILIO TURNUS** Linn. Upon flowers, especially on *Lilacs*; very common in the northern and more elevated portions of New England; one brood each year, imago June, July; larva feeds on the apple-tree.
4. **PAPILIO PHILENOR** Drury. A few specimens have been taken at Cambridge, Mass., about the Botanical Gardens, undoubtedly introduced with some southern plants, and they have also been taken once or twice in other parts of Eastern Massachusetts; last of September.
5. **PIERIS OLERACEA** Boisd. *Pontia oleracea* Harr. In gardens and open shady spots; common only in the northern and elevated parts of New England; there are two broods of this species, the first in May, the second in July; larva feeds on turnips and cabbages.
6. **COLIAS PHILODICE** Godt. Everywhere in open places; the most common species of butterfly, but most abundant in the warmer parts of New England; there are two broods of this species, the first appearing in April and May, the second late in July; the butterflies are to be seen all summer though very rarely in June; larva feeds on clover.
7. **TERIAS LISA** Boisd. About bushes; found only and very rarely in the southernmost portions; September.
8. **TERIAS DELIA** Boisd. Same as *T. Lisa*.
9. **CHRYSOPTERUS AMERICANA** D'Urban, *Canad. Nat.* v: 246. *Lycæna americana* Harr. Fields, on clover, and in high-ways; very abundant everywhere; there are I think three broods each year, the butterflies of the first appearing in the early spring, April and May, of the second late in June and early July, and of the third after the middle of August; larva feeds on sorrel.

10. *CHRYSOPHANUS THOE* Westw. Meadows ; quite rare ; September.
11. *CHRYSOPHANUS EPIXANTHE* Westw. *Lycaena Epixanthe* HARR. Meadows ; very rare ; July.
12. *POLYOMMATUS PORSENNA* nov. sp. Above brownish black. *Primaries* with two connected, large, triangular, fulvous spots, the inner one largest with its apex at the base of the wing, and divided from the apex more than half way down the middle by a black club-shaped dash ; the outer one with its base towards the lower half of outer border, notched in the middle of the side toward the apex of the wing. *Secondaries* having the outer third, except at outer angles, fulvous, with a submarginal series of unequal brownish spots, largest toward inner angle. Beneath cinnamon-brown. *Primaries* with the disk yellowish, a subcostal series of four reddish-brown spots bordered with white, increasing in size outwardly, the outermost near the apex and triple, two large brown spots near the anal angle, and a clubbed streak of same color, corresponding in position to that above, but much broader. *Secondaries* entirely covered with spots like the central ones of the subcostal series of primaries. Expanse of wings 1-3 in.

This species is exceedingly closely allied to *P. Tarquinius* Boisd. and Lec. from which it may readily be distinguished by its range and by having many of the spots of the under surface larger and more distinct ; the condition of my specimens of *P. Tarquinius* will not now allow of a detailed comparison. I have seen only males of either ; the male of *P. Tarquinius* is figured by Abbot in Boisduval and Leconte, and that of *P. Porsenna* by Hewitson in Doubleday and Westwood's Genera ; in some unpublished drawings of Abbot's in the Library of the late Dr. Harris, now in possession of the Boston Society of Natural History, is figured the female also of *P. Tarquinius* ; it differs from the male in wanting the band along costal border, with the exception of a narrow stripe on the sub-costal, having a small square spot just beyond its termination near the middle of the wing, and a transverse series of dots below the latter ; the band on the outer border is also broken up into a large square apical spot, an interrupted, rather narrow, marginal border,

and a rather large dash at the outer angle along the inner border ; on secondaries the marginal series of small spots is wanting, save the central one ; the upper surface only is figured.

Having taken *P. Tarquinius* only in Florida, and knowing of it only from the extreme south, I was much surprised when this spring, specimens of a butterfly were shown me by Mr. Packard from Aroostook Co., Me. and by Mr. Verrill from Norway, Me., which bore a most striking resemblance to *P. Tarquinius* ; subsequently and since this paper was written, I have heard of it from other northern localities and have myself taken it ; Mr. Emory of Springfield took it near Manchester, N. H. ; specimens are in the Museum of Comparative Zoology from the White Mountains, a little north of which, at Berlin Falls, I have taken it and have seen a specimen from near the same place collected by Mr. Treat ; the British Museum specimen comes from Nova Scotia, and latterly (see Canadian Naturalist, vii: 398) it was exhibited at a gathering of entomologists by Mr. Billings, of Prescott, Canada West. My specimens were taken Aug. 13. (This paragraph was appended after the presentation of the paper to the Institute.)

Porsenna was an ally of the Tarquinians on their expulsion from Rome.

13. LYCÆNA NEGLECTA Edw. *Polyommatus pseudargiolus* Harr. (Fig. 105). About thickets ; rare ; June, July.
14. LYCÆNA LUCIA Westw. *Polyommatus Lucia* Harr. (Fig. 106). About thickets and in shaded places ; very rare ; found mostly in the elevated and more northern regions ; April, May, June.
15. LYCÆNA COMYNTAS Westw. *Polyommatus Comyntas* Harr. Road-sides and pastures by woods ; quite common ; there are at least two broods of this ; it appears first very early in the spring, in April ; I have taken it early in June, and it is common from the middle of July to the middle of September.
16. THECLA FALACER Harr. Near thickets ; not common ; last of July and first of August ; larva feeds on Hawthorn.
17. THECLA STRIGOSA Harr. Near thickets ; very rare ; early August.
18. THECLA HUMULI Harr. About bushes and hop-vines ; the most common of the Theclas ; July, August ; larva feeds on the hop.

19. *THECLA AUBURNIANA* Harr. On flowers near woods ; rather rare ; early May and early August.
20. *THECLA NIPHON* Boisd. and Lec. On flowers of *Gnaphalium*, by shady road-sides ; rare ; early May.
21. *THECLA MOPSUS* Harr. *Strymon Mopsus* Hubn. very rare, in southern portions only.
22. *THECLA AUGUSTUS* Kirby. By thickets ; rarely found except in the northern portions where it is common ; May.
23. *DANAIS ERIPPUS* Doubl. *Danais Archippus* Harr. On flowers in meadows ; rather common ; it makes its appearance about the last of July and continues through the following month ; larva feeds on *Asclepias*.
24. *LIMENITIS MISSIPPUS* Harr. in Proc. Bost. Soc. Nat. Hist. vii : 189. *Nymphalis Dissippe* Harr. in Treatise. Fields ; common ; June and September ; larva feeds on willow and poplar.
25. *LIMENITIS URSULA* Boisd. and Lec. *Nymphalis Ephes-tion* Harr. Skirts of woods ; rather rare, only in southern portions ; two broods a year, about the last of June, and in September ; larva feeds on scrub-oak.
26. *LIMENITIS ARTHEMIS* Boisd. and Lec. *Nymphalis Arthemis* Harr. Skirts of woods and shady road-sides ; abundant in the northern and elevated regions only ; June and early July.
27. *ARGYNNIS IDALIA* Godt. Open fields ; not abundant, most common southwardly ; last half of July and early August.
28. *ARGYNNIS CYBELE* Godt. I do not know that this species is found in New-England, but I have seen it from the Hudson River, and do not doubt it will be found in Connecticut.
29. *ARGYNNIS ATLANTIS* Edw. Proc. Philad. Acad. Nat. Sc. 1862 : 54. Road-sides and open fields ; found only in the elevated and northern portions of New-England ; very abundant in the valleys about the White Mountains, N.H. ; last of July and early August ; larva said to feed on the *Violaceæ*.
30. *ARGYNNIS APHRODITE* Fabr. Open fields ; very abundant, about flowers, everywhere except in the most elevated and northern portions ; it is not found about the White Mountains ; July, August.

31. ARGYNNIS MYRINA Godt. Moist meadows; not very common; June, August and September.
32. ARGYNNIS MONTINUS nov. sp. Very similar to *A. Chariclea* Ochs. Above much like *A. Myrina* with fewer black markings at the base of both wings. Below, *Primaries* without any silvery sagittate spots, the markings of the upper surface faintly repeated. *Secondaries* deep cinnamon-red; a broad faint submesial band, bordered with interrupted black lines, of whitish ochraceous scales, deepest next the black border and conspicuous only between the costal and subcostal and between the median and submedian nervures, elsewhere obsolete; there is a submarginal row of faint silvery lozenge-shaped spots, largest towards the outer angle, between which and the mesial band is an arcuate series of round cinnamon-red spots in a field of mingled ochraceous and cinnamon-red scales, forming a band with serrated border. Expanse of wings 1 3-4 in. The males and females do not differ. This species is found only on the lower half of the barren summits of the White Mountains, N. H. I have taken only a few specimens from July 21st to Aug. 18th around bushes and in the road. It does not seem to be abundant.
33. ARGYNNIS BELLONA Godt. Damp meadows; common; last of May and from last of July through August.
34. EUPTOIETA CLAUDIA Doubl. A single specimen of this has been taken by Mr. Shurtleff at Leomister, Mass, in the middle of summer.
35. MELITEA CENONE nov. sp. Above pale fulvous with blackish brown markings. *Primaries*; basal half of costal border black, with a broad arcuate transverse band just beyond the cell between the costal border and median nervure, met at its inner border by a smaller triangular patch having its base on the internal border; the space thus enclosed at the base of the wing broken up into small spots by irregularly disposed black lines; a very broad marginal band, leaving only a comparatively narrow fulvous band in the middle of the upper half of the wing; an arcuate row of small equidistant pale fulvous spots parallel to the apical half of outer margin; between the upper branches of the median a submarginal pale fulvous sagittate spot, with a dot just below it; a narrow dusky band

crosses the spaces on either side of the lowest branch of median, parallel and close to the inner border of marginal band. *Secondaries*; basal half dusky with irregular small fulvous spots; space between costal and subcostal dusky; marginal dusky border not very broad, with a marginal series of scarcely arcuated, obsolete, orange lunules, bordered with black, and also a submarginal series of obsolete pale fulvous crescents, generally most distinct between uppermost branches of subcostal and median nervures; next the marginal band a slightly arcuate series of large round black spots, those between branches of median, pupilled with pale fulvous; the central fulvous band cut in two by an arcuate transverse dusky line.

Beneath. *Primaries* much more pale fulvous than above, with the principal markings of the upper surface faintly repeated, but with the subapical dots much larger, and with the addition of a narrow marginal orange band bordered with black and three apical pearly white, generally confluent, spots. *Secondaries* pale straw yellow, with a basal band of confluent pearly white spots, next to which is a broad yellowish brown transverse band, darkest externally; the margin, except at the outer angle, is broadly blackish brown, with the submarginal row of round spots of upper surface repeated and margined with orange; next the margin is a narrow orange band like that of primaries, resting upon which is a series of pearly white lunules, the two outer of which, with that between uppermost branches of median, are very large, the others inconspicuous; the median broad pale yellowish band is divided into two portions by an undulate ferruginous line; fringe of both wings white interrupted with black. Expanse of wings ♂ 1 3-5 in., ♀ 1 4-5 in.

Quite rare; I have only seen a few specimens from Lenox and Williamstown, Mass., and from Norway, Me., Mr. Verrill.

36. MELITÆA HARRISHI nov. sp. *Melitæa Ismeria?* Harr. (not *M. Ismeria* Boisd. and Lec.) May be quickly distinguished from *M. Oenone* by the under surface of secondaries, which are cinnamon-red with bands and spots of white margined with black, as follows: a broad mesial band cut across externally with black; a basal transverse

spot, and midway between this and mesial band a narrower interrupted band of spots; a spot near the extremity of the cell, and a submarginal row of nearly uniform lunules.

Fields; I have only seen two or three specimens, from Norway, Maine, Mr. S. I. Smith, in the Museum of Comparative Zoology; from Pittsfield, N. H., Mr. Treat; and from Sutton and Princeton, Mass.; mine was taken in July or August.

37. *MELITÆA THAROS* Boisd. and Lec. *Melitæa Pharos* Harr. Meadows and pastures; very abundant; June and early July, late August and September.
38. *MELITÆA PHÆTON* Boisd. and Lec. Low grounds and open fields; quite rare; June; I have taken the caterpillar, just ready to change, upon the Barberry in the middle of May; does the larva hibernate?
39. *PYRAMEIS CARDUI* Doubl. *Cynthia Cardui* Harr. On thistles; common; May and again in July, August and September; larva feeds on thistle and sunflower.
40. *PYRAMEIS HUNTERA* Doubl. *Cynthia Huntera* Harr. Same as *P. Cardui*.
41. *PYRAMEIS ATALANTA* Hubn. *Cynthia Atalanta* Harr. Roadsides; abundant at times; May, August and September; larva feeds on the nettle.
42. *JUNONIA CÆNIA* Hubn. *Cynthia Lavinia* Harr. Dr. Harris took one specimen in a meadow in Milton, Mass., on August 19; I have taken a single damaged specimen in a garden on Cape Cod in early September.
43. *VANESSA ANTIOPA* Ochs. Everywhere; very abundant; hibernate in its perfect state and so appears on warm days in early spring and is seen from then till June and again after the middle of August; larva feeds in company on willows, poplar, and balm of Gilead, stripping them bare.
44. *VANESSA J-ALBUM* Boisd. and Lec. Open woods; rather rare, most abundant in the northern parts; August, September.
45. *VANESSA MILBERTI* Godt. Roadsides; rather rare, more common in northerly portions; May, July, August; larva feeds on nettles.

46. **GRAPTA INTERRIGATIONIS** Doubl. *Vanessa interragationis* Harr. Roadsides; not abundant, more common southwardly; May, August, September, October.
47. **GRAPTA C-ARGENTEUM** Kirby. *Vanessa Progne* Harr. non Cramer. Roads through woods; rather common, the most abundant of the Graptas throughout New England; July, August; larva feeds on the elm.
- I have taken four specimens of a *Grapta* at the White Mountains from the valleys to the summit, which may possibly belong to this species, but seems to indicate the presence of a new species; it is fully as small as, if not smaller than, *G. C-argenteum*, its upper surface is like that of *G. Faunus*, while its under surface is more like *G. C-argenteum*, but differs from that in having the broad ashy band quite hoary, nearly white, and extending also with equal distinctness across the secondaries; the discal spot of secondaries is a white L with both limbs nearly equal similar and straight.
48. **GRAPTA COMMA** Doubl. *Vanessa comma* Harr. Roads through woods; rather rare and appears to be found mainly in the southern portions; May, July, August, September; larva feeds on the hop and the elm.
49. **GRAPTA FAUNUS** Edw. Proc. Philad. Acad. Nat. Sc. 1862: 222. Roads through woods; found only in the northernmost and most elevated portions of New-England, extremely abundant among the White Mountains; August, September, to middle of October.
50. **CHIONOBAS SEMIDEA**. *Hipparchia semidea* Harr. Found only upon the upper half of the barren summits of the White Mountains in July and early August, very abundant; larva feeds upon lichens; ehrysalis found under stones.
51. **SATYBUS ALOPE** Boisd. and Lec. *Hipparchia Alope* Harr. Roadsides and hedges; abundant; July and August.
52. **SATYBUS PORTLANDIA** Boisd. and Lec. I have seen but a single specimen from New-England.
53. **HIPPARCHIA BOISDUVALII** Harr. Pastures; rather rare; late July.
54. **NEONYMPHA EURYTRIS** Westw. *Hipparchia Eurytris* ESSEX INST. PROCEED. VOL. iii. 22.

- Harr. About bushes, in shady places; not common; early June and late July.
55. *LIBYTHEA BACHMANI* Kirtl. A single specimen of this is preserved in Harris' Cabinet marked with his own handwriting "in garden, June 24."
56. *HETEROPTERUS MARGINATUS* Harr. Low meadows; abundant; July, August.
57. *NISONIADES JUVENALIS* Westw. *Thanaos Juvenalis* Harr. Meadows; quite rare, more abundant southwardly; April, May, August.
58. *NISONIADES PERSIUS* nov. sp. This species is spoken of by Harris as a local variety of *N. Juvenalis*, but it is a distinct species; the distinctions mentioned by Harris in the spots on the wings are not persistent, but it differs from *N. Juvenalis* in its smaller size, and in the fact that the male and female are exactly alike in the markings, while in *N. Juvenalis*, the female differs from the male in having very much larger spots and in the marked ashy-grey tints of the apical half of both primaries and secondaries above, differing so much as readily to be taken for a distinct species. *N. Persius* has exactly the general appearance in coloration of the male of *N. Juvenalis*; the distinction of male and female is marked in Abbott's figures. The description of larva and chrysalis in Harris' Insects apply to this insect and not to *N. Juvenalis*, as specimens in his cabinet show. Meadows; somewhat common; early August.
59. *NISONIADES BRIZO* Westw. *Thanaos Brizo* Harr. Meadows; rare; May, July.
60. *NISONIADES CATULLUS* Westw. Very rare, found only in southern portions.
61. *EUDAMUS TITYRUS* Boisd. and Lec. About gardens; not often abundant; June, July; larva feeds on the locust.
62. *EUDAMUS LYCIDAS* Boisd. and Lec. I have seen but a single specimen, obtained by Mr. Plympton in Waltham, Mass., on the flowers of Phlox.
63. *EUDAMUS BATHYLLUS* Boisd. and Lec. Fields; abundant; June, July.
64. *HESPERIA METACOMET* Harr. Fields; somewhat rare; July.

65. *HESPERIA MASSASOIT* nov. sp. ♂ Above very dark-brown with a mulberry lustre, having no markings except occasionally a faint small yellowish spot or two on middle of secondaries, fringe slightly paler, yellowish around the inner angle of secondaries.

Beneath: *Primaries* hardly so dark as above, with reddish-yellow scales scattered along the costal border, and on the outer border, especially toward the apex; two very small spots of same color, about midway between extremity of cell and apex of wing, with two large ones at the middle of the wing, the inner a little lower than the outer: *Secondaries* dark-brown with profusely scattered reddish-yellow scales, especially toward the inner angle; the central portion of the wing is entirely taken up by a large sulphur-yellow spot of irregular shape, formed of a straight broad band, extending between the subcostal and median nervures, nearly to the hind border, cut across by an incurved line of reddish-yellow scales just below the divarication of the subcostal, and crossed by a transverse broad band, just beyond the middle of the wing, extending from costal to submedian nervures, cut across by the reddish-yellow scales following the nervules, and bent somewhat upon either side of the first band.

♀ Differs from ♂ only in having the markings of the under surface of the primaries repeated above, and a faint transverse band of distant reddish-yellow spots across the middle of secondaries. Expanse of wings 1.1—1.4 in. Very rare; I have seen it only from Carver, Mass., Mr. Shurtleff, Conn., Mr. Edwards, and New-England, Museum of Comp. Zoology.

66. *HESPERIA HOBOMOK* Harr. Open field; quite common; June and early in July.

67. *HESPERIA POCAHONTAS* nov. sp. Above dark blackish-brown with yellowish-white markings on primaries disposed as those in *H. Metea*, but considerably larger; secondaries with the markings of the under surface faintly repeated.

Beneath: *Primaries* with a large basal black spot; beyond it a little past the middle a very broad whitish ochraceous band from the sub-costal nervure to inner border; above it and along costal border ochraceous mixed with reddish-

brown scales, with the sub-apical whitish spots of the upper surface repeated; between them and the tip a reddish-brown patch; the outer margin rather broadly bordered with grayish scales. *Secondaries* reddish-brown with a very broad transverse greyish band of whitish mixed with reddish-brown scales, placed a little beyond the middle, with somewhat irregular borders, expanding between the sub-costal and the median, having much the appearance of that in *H. Hobomok*; the outer margin rather broadly bordered with greyish scales like that of primaries, deeper in tint than the transverse band; between the costal and sub-costal, midway between its union with the subcostal and the broad band, a small spot of greyish scales; fringe of both wings ochraceous or dark brown. Expanse of wings nearly 1 1-2 in. I have only seen a few specimens taken in Mass. and Conn. by Mr. Norton; very rare.

68. *HESPERIA LEONARDUS* Harr. Appears to be quite an uncommon species, but I have taken it abundantly on Cape Cod in September.

69. *HESPERIA MYSTIC*. *Pamphila Mystic* Edwards Mss.
 ♂ Above: *Primaries*; the outer border broadly margined with dark brown, the inner edge of the margin excavated between the subcostal and median nervures; the rest of the wing dark golden-yellow, except a dark-brown patch between the sub-costal and median a little beyond the middle, the griminess of the base of the wing, and the velvety black dash, which here extends from the sub-apical patch to the sub-median nervure, at about two-fifths the distance from the base; it is nearly straight, but formed of two shallow crescents, the innermost occupying the space between the median and sub-median, each broadly bordered externally with a blackish-brown roundish spot, the two partially or wholly confluent. *Secondaries*; the entire border broadly margined with dark-brown, the central portions dark golden-yellow traversed by dark nervures, and transversely by a narrow dusky medial band.

Beneath ochraceous with the markings of the upper surface dusky repeated and in addition a broad blackish patch along the basal half of inner border of primaries,

and a dusky patch between the basal half of the space between median and submedian on secondaries. The fringe is pale brown, paler on secondaries, and the outer border of both wings is narrowly edged with black.

♀ differs from ♂ in following particulars: *Primaries*; the whole costal border is broadly margined with dark-brown up to the sub-apical patch with which it is usually confluent, and in the place of the black dash, is a broad dark-brown spot occupying all the basal half of the wing below the median nervure, and becoming confluent, with the sub-apical patch at its upper extremity. *Secondaries*; the medial band is broad instead of narrow, leaving but a small yellowish spot near the base. Beneath the markings are repeated with rather more distinctness than in the ♂. Expanse of wings ♂ 1 1-4 in. ♀ 1 2-5 in.

The ♂ differs from that of *H. Sassacus* in the spots bordering the black dash of primaries, and in their confluence with the sub-apical patch, which is itself broader, as well as in the transverse band of secondaries. The ♀ differs from that of *H. Sassacus* in the greater extent of the black patches on the primaries and their confluence with the sub-apical patch, and also in the broad transverse band of secondaries wholly wanting in *H. Sassacus*. Open fields; common from middle of June to middle of August; from White Mountains to Maryland.

70. *HESPERIA SASSACUS* HARR. ♂ differs from the ♀ in the velvety black dash which takes the place of the central black stripe; this is very narrow, very slightly curved, extends from the last divarication of the median, along the lower side of that nervure, across the space between it and the sub-median to the latter, terminating at a point about one-third the distance from the base; it is narrowly edged below with large lustrous brown scales, but has no spots bordering it, as in *H. incerta*. Harris described only the ♀. Open fields; quite rare, especially the females; June.
71. *HESPERIA WINGINA* nov. sp. ♂ Above: *Primaries* bright tawny-yellow with a broad maroon border extended inwards duskiy between the nervures; a dark-brown sometimes dusky patch between sub-costal and median, extending from just above last divarication of median half way to the border; the oblique dash straight, extending

from last divarication of the median to the sub-median, two-fifths the distance from the base ; it is formed of a narrow patch, pointed outside rounded inside, of dust-colored scales, edged above narrowly and below very narrowly with crowded black scales, with a broad black border below of scales of the usual distance apart ; *Secondaries* dark-brown, the whole central portion strongly tinged with tawny.

Beneath: *Primaries* with the markings of the upper surface, except the oblique dash, repeated, and an addition of a large dark patch on the basal half of inner border. *Secondaries* sulphur-yellow, the outer margin with scattered brownish scales, a roundish brown spot in centre, a large triangular one near the base of the costal border, and two rather large submarginal squarish patches sometimes confluent, one at the extremity of the subcostal, and the other near the tip of the median nervules. Fringe of outer border of both wings tawny mixed with dark brown on the upper half of primaries.

♀ Above uniform dark brown with dull yellowish-white spots on the primaries like those in ♀ of *H. Monoco* and *H. Massasoit*.

Beneath: *Primaries* dark brown with the markings of upper surface repeated and the costal border and upper portion of outer border edged with dark olivaceous scales. *Secondaries* as in the ♂ with dull dark olivaceous scales in the place of the sulphur-yellow, with the spots and patches of blackish-brown more or less mixed with olivaceous. Expanse of wings ♂ 1 1-3 in. ♀ 1 2-5 in.

Rare and only found in southern portions of N. England ; abundant South.

72. HESPERIA WAMSUTTA Harr. *Hesperia Peckius* Harr. (not *H. Peckius* Kirby) Open fields, pathways and highways ; the most common species of *Hesperia* ; found from Canada to Maryland ; June, July, August.

73. HESPERIA EGEREMET. *Hesperia Otho* Bois. and Lec. Pl. 77 (not *Papilio Otho* Abb. and Smith.)

♂ Above dark glossy brown ; *Primaries* with a velvety-black oblong oval patch .08 in. in length on the hind border of median, separated from a black spot, two-fifths as large between the median and submedian, by a patch

of large brown scales, which also border the spot exteriorly and encroach upon it; beyond and bordering the oval patch is a quadrate yellow spot, half way between which and the apex, approaching the costal border is a small divided yellow spot; there are a few yellow hairs along the inner border. *Secondaries* with a few yellow hairs, giving a dull tint over the whole disk; the fringe of both wings is pale brown.

Beneath dark brown slightly dusted with ochraceous scales. *Primaries*; the yellow spots of upper surface repeated; a few yellowish scales along basal half of costal border. *Secondaries* with a faint pale-yellowish narrow transverse band just beyond the middle, scarcely reaching either border.

♀ Differs from the ♂ as usual, and also in wanting the spot beyond the black patch, which is replaced by two others, the smaller between the last two branches of the median at their base, the other on the space below a little more towards the base; the spots are brighter than in the male and the secondaries are more nearly uniform; beneath the spots of the primaries are repeated and the secondaries are as in the male—Expanse of wings 1 1-4 in. ♂ Mass. F. G. Sanborn; ♂ ♀ Georgia, Harris' Collection from Mr. Abbot and Dr. Oemler; ♂ Western States, Mus. Comp. Zool.; very rare in N. England; July.

74. *HESPERIA MANATAAQUA*. *Hesperia cernes* Harr. Ins. 3rd Ed. 316 (not *H. cernes* Boisd and Lec.)

The two specimens, one from Massachusetts and the other from Georgia, from which Dr. Harris drew up the description of *H. cernes* belong apparently to two representative species, differing from one another (they are both males) in the oblique black dash of the primaries; they can neither of them be referred to *H. cernes* Boisd. and Lec., which is more nearly allied to the succeeding species, though of the size of these; the species from Georgia appears to be yet undescribed; to the one from Massachusetts may be given the name I have proposed above; the female differs from the male only in wanting the oblique black dash of primaries, and in the presence of two rather large squarish yellowish spots, at the outer extremity of where the oblique dash would be if present, between the

median nervules, the lower one largest and not so near the outer margin. Very rare; July.

75. *HESPERIA AHATON* Harr. This species is certainly very closely allied to *H. cernes* Boisd. and Lec. but is invariably smaller than their representation of it, and in the absence of specimens from the South, I shall at present presume that, as is the case with the preceding species, there is a southern representative of this species, which has been figured by Boisduval and Leconte under the name of *H. cernes*. The female of this species differs from its male, not only as Harris has stated, but also in having the costal band very pale-tawny, often obsolete, and the spots on the primaries very pale, almost whitish.

Open fields; males quite common, females very rare; June and August.

76. *HESPERIA ONEKO* nov. sp. Above dark-brown, tinged slightly with ochraceous on the secondaries. *Primaries* with a strongly arcuated band of small ochraceous spots, starting from costal border at a little more than three-fourths of the distance from the base, bent inward towards the middle, terminating a little below centre; two small spots at the tip of the cell. *Secondaries* without markings.

Beneath dark-brown, with a slight bluish tinge on secondaries. *Primaries* with the markings of the upper surface distinctly repeated. *Secondaries* with a rather narrow transverse whitish-ochraceous band a little beyond the middle, bent in the middle of its course, with an indistinct transverse line sub-parallel to it, midway between it and the base. Expanse of wings 1 1-3 in. Very rare; I know it only from Connecticut, Mr. Norton.

77. *HESPERIA HEGON* nov. sp. Above and beneath uniform dull dark-brown, with faint white markings on both surfaces of primaries situated as in *H. Oneko*; on under surface of secondaries, a submarginal series of small indistinct whitish spots, a small white spot in the centre, and another between the costal and subcostal nervules, midway between the base and the submarginal band. Expanse of wings nearly 1 inch.

I have seen but a single specimen, a female taken by myself at the White Mountains in the latter part of July.

78. *HESPERIA SAMOSET* nov. sp. Above dark-brown with

a few ochraceous scales especially at base of primaries and on disk of secondaries. *Primaries* with three small yellowish spots one above the other on costal border a little more than three-fourths the distance from the base; below these and a little further removed from the outer border than they, between the uppermost branches of the median, a small spot; in the space below, situated near the base, another small spot or slender oblique line, and sometimes another below it between median and submedian; a double spot at the end of the cell.

Beneath dark-brown with profusely scattered pale-yellowish scales most abundant toward the outer margin; a very delicate purplish reflection, especially on secondaries. *Primaries* with the markings of the upper surface repeated. *Secondaries* with a narrow transverse pale yellowish band, two-thirds the distance from the base, nearest the outer margin at the lowest band of subcostal, where it is bent at right angles, and whence towards the costal border it is interrupted; a small spot in centre and another between costal and subcostal midway between the base and transverse band; fringe of both wings pale yellowish interrupted with dark-brown, most distinct upon primaries. *Expanse of wings fully 1 inch.* Very rare; I have seen two specimens from Mass. and N.H.

79. *HESPERIA METEA* nov. sp. Above dark-brown tinged with ochraceous, especially on secondaries. *Primaries* with the following white markings; two small spots at the extremity of the cell; three small white spots one above the other on the costal border, a little more than three-fourths of the distance from the base; below these, and half way between them and the outer border, one above the other, two more small ones; placed successively a little nearer the base than the last, two others somewhat larger between the branches of the median. *Secondaries* uniform in tint, with a faint ochraceous repetition of the markings beneath; the outer border of both wings narrowly edged with black; the fringe slightly paler than the upper surface.

Beneath dark-brown, on the secondaries approaching to black, with some greyish scales towards outer border.

Primaries with the markings of the upper surface repeated with greater distinctness; a large pale-brown spot at outer

- angle. *Secondaries* with a band formed of squarish greyish-white spots between the nervures, starting at the costal at two-thirds the distance from the base, nearly reaching the outer border in the space between subcostal and median, thence bent toward the inner border at a very little less than a right angle, terminating at the submedian. Expanse of wings, 1 1-3 in. I know this species only by a single female from Conn., received from Mr. Norton.
80. *HESPERIA MONOCO* nov. sp. Uniform dark-brown above and beneath, the secondaries with no markings. ♂ *Primaries* with a narrow, slightly sinuate black dash, taking a general direction from the apex to the middle of the inner border, commencing at the median at its second divarication and barely attaining the submedian; there are three small white or pellucid spots, one above the other, between the ultimate branches of the subcostal, and another small one just beyond the outer tip of the black dash. ♀ *Primaries* the same as the ♂, except in having the black dash replaced by a whitish spot, between the first two branches of the median, below and a little within the smaller single one. The pale markings in both sexes are repeated beneath. Expanse of wings 1 1-3 in. Very rare; only in southern portions; Conn. Mr. Norton, and Mass.
81. *HESPERIA PANOQUIN* nov. sp. Above dark-brown tinged with golden-yellow on the disk. *Primaries* more pointed at the tip than in any other species; a series of four small equidistant yellowish-white spots, commencing near the apex, parallel with the costal border, and terminating with one larger than the rest between the earliest branches of the median near the divarication; half way between the second and the costal border is a small nervure-divided one.
- Beneath with no tinge of yellow. *Primaries* with the markings of the upper surface repeated but with scarcely any yellow tinge, and in addition a faint white spot near the middle of the space between the median and submedian. *Secondaries* with a small white spot between the first two branches of subcostal, three-fourths the distance from the base of the wing, and a narrow pearly-white streak between the next two branches, on the outer half

of the wing, not reaching the border, and a small faint white spot in the middle of the space between median and submedian. Expanse of wings 1 1-3 in. The pointedness of the apex of the primaries would lead one to suppose this a male, but it has no black dash on the primaries; the abdomens of the only specimens I have seen chance to be broken. Very rare; I have only seen two specimens from Conn., received from Mr. Norton.

Mr. F. W. Putnam read a letter recently received from Prof. M. Miles, of Lansing, Mich., accompanying a box containing a large collection of fishes, reptiles, &c., from that state, and expressing a wish to continue the exchange of specimens in natural history. A vote of thanks was passed to Mr. Miles for the above collection and the curators of the department of Natural History were requested to continue the exchanges.

Prof. A. Crosby expressed the interest and pleasure he had experienced in listening to the valuable remarks which had been offered during the evening, and on his motion,

Voted unanimously, that the thanks of the Institute be tendered to Messrs. Verrill and Scudder for the highly valuable remarks and communications presented this evening, and the papers be referred to the Publication Committee.

Donations were announced from the following :

To the Library—from J. Fiske Allen; Thomas Pinnock; Misses King; George Nichols; E. M. Stone of Providence, R. I.; M. A. Stickney; Mrs. Mary E. Wheatland; Montreal Society of Natural History; Wm. Brown; Trustees Public Library of Boston; Canadian Institute at Toronto; Mrs. Geo. H. Chase; C. B. Richardson of New York; M. Miles of Lansing, Mich.; Geo. C. Chase; H. M. Brooks; John G. Felt; and John Robinson.

To the Cabinets—from S. Q. Felt; Geo. P. Ives; Abiel H. Wardwell; Stephen Cloutman; John Robinson; Chas. H. Manning; M. Miles, Lansing, Mich.; A. C. Goodell, Jr.

Adjourned.

Monday, March 24, 1862.

Meeting this evening at 7 1-2 o'clock. In the absence of the President and Vice Presidents, A. C. Goodell Jr., was called to preside.

Records of the preceding meeting read.

Letters were announced from Chas. W. Felt; S. Jillson of Feltonville; C. H. Manning; and J. Wingate Thornton of Boston.

Rev. J. B. FELT read a valuable communication on the early piracies on this coast, with a particular reference to those of Capt. William Kidd. (See Historical Collections of the Institute, vol. iv. page 80.)

Remarks were offered in connexion with this subject, by the chair, Messrs. C. C. Beaman, G. D. Phippen and other members.

On motion of Mr. Phippen it was

Voted, That the thanks of the Institute be tendered to Mr. Felt, for the communication read this evening, and that a copy be placed at the disposal of the Publication Committee.

Donations were announced from the following:—

To the Library—from N. J. Lord, Montreal Society of Natural History; Boston Society of Natural History; Museum of Comparative Zoology at Cambridge; W. B. Cloutman; Chicago Historical Society; J. Wingate Thornton of Boston; George F. Read, James B. Curwen.

To the Cabinet—from John C. Chadwick; William L. Welch; Samuel A. Greene; Charles W. Felt; E. D. Ropes; O. H. Saunders.

Adjourned.

Monday, April 7, 1862.

Meeting this evening at 8 o'clock; in the absence of the President, George D. Phippen was called to preside.

Records of preceding meeting read.

Letters were announced from the Trustees of the New York State Library; American Geographical and Statistical Society; Horace Binney of Philadelphia; Historical Society of Pennsylvania; Maine Historical Society; Connecticut Historical Society; F. S. Pease of Albany; Solomon Lincoln of Hingham; Jonathan Pearson of Schenectady N. Y.; C. M. Tracy of Lynn; A. E. Verrill of Norway, Me.

C. M. TRACY of Lynn gave an interesting and instructive lecture on *Phyllotaxis*—the arrangement of the leaves on the stem, the uses of the leaf in the vegetable economy—the variety of the forms in the different plants, mode of development, &c.

Remarks upon the lecture were offered by the chair, Rev. C. C. Beaman, and others.

On motion of Mr. Beaman, the thanks of the Institute were tendered to Mr. Tracy for the lecture, which he has presented to our consideration this evening.

Donations were announced as follows:

To the Library—from James Cook of San Francisco; Cincinnati Mercantile Library Association; Philadelphia Academy of Natural Science; New York Lyceum of Natural History; Jonathan Pearson of Schenectady, N. Y.

To the Cabinets—from N. Ingersoll; George Cassey of

South Danvers ; W. L. Welch ; Charles H. Manning ; Salem Volunteers in the 21st Reg., Mass. Vols., by A. F. Walcott ; O. H. Saunders.

Adjourned.

Friday, April 25, 1862.

Meeting this evening at 8 o'clock, the President in the chair.

Records of preceding meeting read.

Letters were announced from Samuel A. Green, Surgeon 24th Reg. Mass. Vols.; F. H. Lee of 23d Mass. Vols.; and A. F. Walcott of 21st Mass. Vols.; W. Barry, Sec'y Chicago Historical Society; S. H. Grant, Lib. N. Y. Mercantile Library Association; Solomon Lincoln of Hingham; E. S. Waters.

A. C. Goodell Jr., read a paper on the history of the Puritans, with especial reference to the distinction between the Separatists, or Independents of Plymouth Colony, and the Non-conformists of Massachusetts Bay.

Beginning with a brief review of the progress of the Anglican reformation up to the time of the Marian persecutions, he described the difficulties in the church of the exiles at Frankfort, in 1554, as the origin of Puritanism in the Church of England; though the name Puritan is not known to have been used before 1564.

He then traced the origin of the Old Separatists to the year 1566; of the Brownists to the year 1582; of the Semi-Separatists to the year 1602—from whom sprang the Plymouth Colonists, or "Pilgrim Fathers;"—and of the Non-conformists to the year 1559, of which class were the Puritans of Massachusetts Bay.

In conclusion, he entered into an examination of the doctrines and of the ecclesiastical systems of the two colonies,

and concluded that the difference between them was chiefly in their respective origins and ecclesiastical traditions, and not in any essential variance respecting matters of doctrine or discipline, which will account for the rapid and complete union of the two colonies in all ecclesiastical matters, and for the harmony with which both labored to build up a church system which was peculiar, and which combined in some measure the characteristics of the of the politics of the three great classes of dissenters; the Presbyterians, the Erastians, and the Independents of Old England. (See Hist. Coll. of Institute, iv : 145.)

F. W. Putnam gave a brief outline of the Animal Kingdom, with especial reference to the principal elements that mark the Branch, the Class, the Order, the Family, the Genus, the Species, and Variety. He also explained the mode of instruction in Zoology adopted by Prof. Agassiz at his school in Cambridge, and proposed to adopt a similar course, so far as circumstances will admit, with the class of young pupils which he was then about forming at the rooms of the Essex Institute.

The chair presented to the society the lancet case formerly belonging to the late Dr. Micajah Sawyer of Newburyport, in behalf of Dr. Stevens of New York,—announcing the same with appropriate remarks on the character of Dr. Sawyer and his distinguished patient the Rev. George Whitfield.

Donations were announced as follows :—

To the Library—from Samuel G. Drake of Boston; Peabody Institute of South Danvers; American Philosophical Society; Canadian Institute at Toronto; H. M. Brooks; J. J. Rider; Miss Lydia Pope; Geo. F. Read; N. Silsbee; J. Perley, Jr.; L. Bemis of Boston; H. F. Shepard; R. H. Wheatland.

To the Cabinets—Chas. B. Elwell; C. Cooke; W. L.

Welch ; Henry Merritt ; George Cassey of South Danvers ;
O. H. Saunders ; A. H. Stevens of New York.

On motion of Rev. E. B. Willson the thanks of the Institute were tendered to Messrs. Goodell and Putnam for their interesting remarks.

Adjourned.

Wednesday, May 14, 1862.

Annual meeting, this day, at the rooms, Plummer Hall, at 3 P.M., Vice President, S. P. Fowler in the chair.

Records of the preceding annual meeting read.

Donations since the meeting of the 25th ult. were announced from the following :—

To the Library—from S. G. Wheatland ; J. B. Alley, M. C. ; William Briggs ; John L. Sibley of Cambridge ; E. B. Willson ; J. J. Rider ; Mrs. G. H. Chase ; Charles F. Barnard of Boston.

To the Cabinets—from J. J. Rider ; Henry F. Shepard ; Joseph Short of Philadelphia ; James B. King ; J. C. Trask of Gloucester ; Eben Sutton of South Danvers.

Letters were read from the Trustees of the Public Library of Boston ; New Jersey Historical Society ; S. A. Allibone of Philadelphia ; Henry M. Brooks.

Also from W. O. White of Keene, N.H., tendering to the Institute a portrait of his father, Hon. Daniel Appleton White, our late lamented President—a vote of thanks was unanimously passed to Mr. White for this valuable acquisition to the collection of portraits.

Report of the Secretary was read and accepted.

Report of the Treasurer was read and referred to the Finance Committee.

F. W. Putnam, made a verbal report on the condition of the collections of Natural History.

From these reports the following abstract is presented, giving a cursory view of the doings during the year.

Four resident members have deceased :—

1. JOHN FELT WEBB, son of Benjamin and Sarah (Felt) Webb. Born at Salem, Feb. 9, 1811, died at Southampton, England, Oct. 20, 1861. Educated at the old Latin school, under master Eames; thence into the counting-room of John Forrester, one of the prominent merchants of Salem, in his day; afterwards supercargo and commander for several years; and finally established himself abroad, where he resided, with occasional visits at home, a large portion of his time, as a commercial Agent, principally at Zanzibar; at which latter place he was for many years U. S. Consul. He was a man of strongly marked character, and was highly esteemed for his probity, intelligence and uniform self-reliance, and was exemplary in all the relations of life, especially as a son, a brother and a friend.

2. WILLIAM MACMULLEN, son of John Macmullen, was born at Salem. In early life he went to Zanzibar, as a commercial Agent, and was for some time the U. S. Consul, at that place. A few years since he returned to Salem and engaged in mercantile pursuits. He died at Salem, Feb. 9, 1862, aged 35 years and 11 months, leaving a wife—Harriet, daughter of Thomas Perkins,—and three children. He was a person highly esteemed and possessed active business qualifications.

3. HENRY KING FETTYPLACE, son of Thomas and Hannah (Devereux) Fettyplace. Born at Salem, Jan'y 28, 1820. Educated at the High school; for some years a clerk in one of the Salem Banks; afterwards went to Mobile, Ala., and engaged in business, where he had resided for more than twen-

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ty years, with the exception of occasional visits to the north during the summer months. He died at Salem, March 10, 1862. He was highly esteemed for his perfect integrity and sense of honor in all business transactions.

4. The news of the death of the fourth reached us, a few days since;—**WILLIAM OLIVER POTTER**, Capt. of ship *Cut-water*—washed overboard during a storm near Cape Horn, on his passage from San Francisco to Boston, 18th March, 1862. He was son of Jesse and Susan (Punchard) Potter. Born at Salem, Oct. 7, 1820, educated in our schools, and soon after entered upon a maritime life. As a shipmaster he was possessed of rare excellence, sagacious judgment in matters of business, persevering and energetic. In private life he was much endeared to his friends, generous, cheerful and affectionate.

MEETINGS have been held as in previous years; some doubt was expressed as to the practicability, owing to the state of the country; it was deemed, however, best to continue in the same path as circumstances would admit; the success has more than realized the expectations. Five Field Meetings have been held at Boxford; South Lynnfield; Kettle Cove, Gloucester; Gravesend, Lynn; and Middleton; and eleven Evening Meetings during the winter months.

PUBLICATIONS. The Historical Collections have been printed as usual—Three volumes have now been issued. The first number of Vol. IV, is ready.

To the **LIBRARY**, have been added 3492 volumes—9801 serials and pamphlets, exclusive of incomplete files of newspapers unbound. With few exceptions, donations, and have been received from twenty-seven societies, or departments of state and the national government, and seventy-seven individuals.—The principal addition was the bequest of our

late President, Hon. D. A. White, which numbered thirty-three hundred volumes, and eight thousand pamphlets or serials—comprising works in the various departments of history, literature, and science—many are rare and exceedingly valuable to the historical student.

HISTORICAL DEPARTMENT.—In December the Curators issued a circular requesting cooperation in making a collection of any matter relating to the present war which may serve to illustrate its causes, origin and progress. In response to the same, valuable contributions have been received from Messrs. W. G. Welch, B. E. Shaw, Henry Merritt, J. C. Chadwick, G. F. Austin, G. P. Ives, Salem Volunteers in 21st Mass. Reg. by A. F. Walcott, Mark Lowd, Mrs. J. Chamberlain, Charles Davis of Beverly, William Hulin of Rockford, Ill., John Robinson and others.

Mrs. F. G. DePeyster of New York, has presented the portrait of her uncle Jonathan Goodhue, an eminent merchant of New York. He was the son of Benjamin Goodhue, and was born at Salem, June 21, 1783, and died at New York, on Friday the 24th of November, 1840.

Donations have also been received from Mrs. H. M. Colcord of South Danvers, W. O. Potter, John G. Felt, J. J. Rider, Charles Hoffman, Mrs. D. A. White, C. F. Williams, Henry M. Brooks and others.

DEPARTMENT OF NATURAL HISTORY.—It is noticed that our sea-faring friends have continued active in filling the cans with choice and rare specimens, Messrs. E. D. Ropes, William Crandall and others may be mentioned.

Addison Flint of North Reading, presented a living specimen of *Emys Blaudingii*; Prof. M. Miles, a collection of Fishes and Reptiles of Michigan. Miss S. A. Chever, a collection of Shells from East Indies. Miss R. Johnson, Shells from Aspinwall. Mrs. T. S. Greenwood of Ipswich,

a fasciculus of pressed Sea-weeds. Mrs. F. M. Creamer, fruit and leaves of the great California Pine. C. Cooke, a fasciculus of pressed plants from Zanzibar. N. Ingersoll, J. G. Waters, G. H. Devereux, W. S. Daland, S. Barden of Rockport, Joseph Short of Philadelphia, E. E. Chever, J. Cleaves, C. W. Felt, A. H. Wardwell, S. Cloutman, Minerals.

TREASURER'S Statement of the financial condition for the year ending, May 1862.

GENERAL ACCOUNT.

Debits.

Athenæum—Rent and one-half fuel and attendance,	\$457 75
Cases, \$300 ; Books, \$10 ; Stationery, \$11 95,	321 95
Printing, 396 15 ; Gas, 4 53,	400 68
Express, Postage, &c.,	21 46
Department of Natural History	50 12
	<hr/>
	\$1,251 96

Credits.

Balance of accounts of 1861,	55 61
Assessments, 574 00 ; Webster Bank, 30 00	604 00
Salem Savings Bank,	300 00
Sale of Publications,	233 80
Historical Account 32 13 ; Sundries, 7 50,	39 63
Balance,	18 92
	<hr/>
	\$1,251 96

HISTORICAL ACCOUNT.

Debits.

Books, 10 00 ; Publications, 32 13 ; Sundries, 9 87, \$52 00.

Credits.

Naumkeag Bank, 12 00 ; Mich. Cent. R. R., 40 00 52 00.

NATURAL HISTORY AND HORTICULTURAL ACCOUNT.

Debits.

Taxidermy 9 87; Books 4 00; Preservatives, 11 19	25 06
Glass 62 47; Sundries 14 59,	77 06
	<hr/>
	102 12

Credits.

P. S. & P. R. R., 12 00; Lowell Bleachery, 40 00,	52 00
General Account, - - - - -	50 12
	<hr/>
	\$102 12

The following officers were elected for the year ensuing and until others shall be chosen in their stead, viz:—

President—ASAHEL HUNTINGTON.

Vice Presidents—Samuel P. Fowler, James Upton, Abner C. Goodell, Jr.

Secretary and Treasurer—Henry Wheatland.

Librarian—John H. Stone.

Cabinet Keeper—Richard H. Wheatland.

Finance Committee—John C. Lee, R. S. Rogers, George D. Phippen, Henry M. Brooks, James Chamberlain.

Publication Committee—A. C. Goodell, Jr., Henry Wheatland, George D. Phippen, Ira J. Patch, John H. Stone, George M. Whipple.

Library Committee—J. G. Waters, David Roberts, A. Grosby, N. J. Holden.

Curators of Natural History—In Botany—C. M. Tracy; Mammalogy and Ornithology—F. W. Putnam; Herpetology and Ichthyology—R. H. Wheatland; Articulata and Radiata—C. Cooke; Mollusca and Paleontology—H. F. King; Comparative Anatomy—Henry Wheatland; Geology—H. F. Shepard; Mineralogy—D. M. Balch.

Curators of History—Ethnology—Wm. S. Messervy, M. A. Stickney, F. H. Lee; Manuscripts—Henry M. Brooks, Ira J. Patch, L. R. Stone, G. L. Streeter, S. B. Buttrick; Fine Arts—F. Peabody, J. G. Waters.

Curators of Horticulture—Fruits and Vegetables—James Upton, John M. Ives, J. F. Allen, J. S. Cabot, John Bertram, R. S. Rogers, George B. Loring, C. F. Putnam; Flowers—F. Putnam, W. Mack, C. H. Norris, B. A. West, George D. Glover.

A Committee was appointed consisting of Messrs. Allen W. Dodge of Hamilton, C. M. Tracy of Lynn. S. P. Fowler of Danvers, John M. Ives, R. H. Wheatland, C. C. Beaman, and C. H. Norris, to arrange for the Field Meetings the coming season.

A committee was also appointed to arrange Lectures for the ensuing winter if expedient, also the evening meetings. Messrs. A. C. Goodell, Jr., C. C. Beaman, W. J. Rolfe, H. M. Brooks, C. H. Norris, E. B. Willson, F. W. Putnam, and James Kimball were appointed on said Committee.

Voted, That the Curators on Horticulture be authorised to arrange for the holding of several exhibitions of Fruits and Flowers during the ensuing season, if advisable.

Donations since the meeting of the 25th of April, were announced.

To the Library—from S. G. Wheatland; J. B. Alcy, M. C.; William Briggs; J. L. Sibley of Cambridge; E. B. Willson; J. J. Rider; Mrs. G. H. Chase; Charles F. Barnard of Boston.

To the Cabinets—from J. J. Rider; Henry F. Shepard; Joseph Short of Philadelphia; James B. King; J. C. Trask of Gloucester; Eben Sutton of South Danvers.

Adjourned.

Wednesday, July 2, 1862.

• **FIELD MEETING AT SOUTH DANVERS.** The location of this, the first gathering of the kind this season, had been placed at the pleasant little village of "Rockville" near the notable erratic called "Ship Rock", which, as often before stated, has been for several years preserved to the uses of science by the protection of the Institute.

A considerable number attended this meeting, arriving by railroad from the several towns most usually represented, and stopping at Newhall's Crossing, where a rather enterprising saw-mill works busily away under the influence of Goldthwait's Brook. Many of the old familiar faces of our friends were found with us on this occasion, testifying, better than words could do, what enduring satisfaction is to be had in the study of nature in her own undisturbed retreats.

The various divisions of the company having pushed their explorations in this that and the other direction, as far as time or inclination would allow, and gathered all matters of interest which the circumstances made available, the lunch was despatched in true pic-nic style.

The afternoon meeting was subsequently called to order in the village chapel, at three o'clock, by Vice President, Samuel P. Fowler, of Danvers.

Donations, since the annual meeting in May, were announced.

To the Library—from the New Jersey Historical Society; Montreal Society of Natural History; J. F. Worcester; N. J. Holden; Maryland Historical Society; Messrs. Daland; Boston Society of Natural History; Philadelphia Academy of Natural Science; Henry F. Shepard; American Statistical Association; C. B. Richardson of New York; E. P. Robinson of Saugus; Massachusetts Legislature; American

Antiquarian Society; American Academy of Arts and Science; Fitch Poole of South Danvers; Smithsonian Institution; New York Mercantile Library Association; Miss A. M. Hemmenway, of Ludlow, Vt.; W. P. Tucker of Brunswick, Me.; Luke Bemis of Boston; John B. Alley, M. C.; Allen W. Dodge of Hamilton.

To the Cabinets—from Joseph Short of Philadelphia; Eben. B. Symonds; Henry Merritt; W. O. Potter; Henry F. Shepard.

Letters were read from Maine Historical Society; Mercantile Library Association, Boston; American Geographical and Statistical Society; New Jersey Historical Society; Pennsylvania Historical Society; Smithsonian Institution; Minnesota Historical Society; Henry Barnard of Hartford, Conn.; Fitch Poole of South Danvers; S. H. Grant of New York; Miss A. M. Hemmenway of Ludlow, Vt.; E. P. Robinson of Saugus; Department of the Interior, Washington; W. R. L. Ward of New York; A. A. Smith; C. B. Richardson of New York; C. M. Endicott; S. D. Bell of Manchester N.H.; C. M. Tracy of Lynn; F. W. Putnam; S. P. Fowler of Danversport; W. S. Cleveland; Isaac M. Long.

F. W. PUTNAM of Salem, from the Committee appointed last year to investigate the character and habits of the Army Worm, submitted a detailed report on the subject, prepared at his request, by Mr. SHURTLEFF of the Cambridge Museum: As a preface to the Report, Mr. P. stated some of the leading facts as to the ravages of this worm last year, and also that it had appeared again this season, but not to the same extent. At the close of the reading, on motion of Mr. Goodell of Salem, the thanks of the Institute were voted to the Committee for their very instructive report.

REPORT ON THE ARMY WORM, *Leucania unipuncta* HAW.
BY CARLETON A. SHURTLEFF OF BROOKLINE.

The nation was not more surprised at the audacity and wickedness of the Southern traitors last year, than were the farmers at the appearance and ravages of the Army Worm last Summer; they came in such myriads and were so voracious that they threatened the destruction of the entire grain crop where they appeared. Most persons considered them entirely new, and to many uneducated in the laws according to which nature works they appeared to be spontaneously created from the earth itself.

But we find this visitation is not unparalleled; they often appear at the South and do immense damage; and we have had them here before; they have visited Massachusetts on a number of occasions in the olden time; I take Dr. Fitch's dates from the Boston Cultivator.

"In 1743 there were 'millions of devouring worms, in armies threatening to cut off every green thing.' Flint's 2d Report, Agric. of Mass. p. 36.

"In 1770 a black worm about an inch and a half long, devoured the grass and corn. They all moved in one direction, and when they were intercepted by furrows in ploughed land, they fell into them in such numbers as to form heaps. They sought shelter in the grass, a hot sun being fatal to them; they disappeared suddenly about the close of June and beginning of July.'—Webster on Pestilence vol. 1, p. 259.

"Eleven years afterwards the same kind of worm appeared again, but they were few in number."—Cultivator, 10th Aug.

"1790—Millions of the same black worm reappeared in Hartford and Norwich, Conn."

"1817—It appeared May 22d in Worcester; also in Albany." It is stated in the Albany Argus that it attacked flax particularly. Now as I have seen it stated that the army worm of 1861 did *not* attack flax, these may have been different species, though they may have been harder pushed for food then, than in 1861. Everything else we know of their habits goes to show that they were probably

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the same species, and all our entomologists I believe consider them so ; but we have no definite proof that I know of on either side.

They have not been noticed generally since 1817 in this part of the country, but it must not be supposed that they have lain dormant during all that time, nor that they were then exterminated and now recreated ; they have undoubtedly appeared every year since then, but in small numbers, and in places unfrequented by those who would be likely to observe them. In 1860 I took two moths and then considered them quite rare, never having taken them before. This shows that they did not increase quite so suddenly as most persons think, but were more numerous in 1860 than in the years preceding it, and therefore laid more eggs for 1861.

Dr. Fitch (and Mr. J. Kirkpatrick and other observers corroborate his opinion) thinks that the army worm originally belonged to the swamps and has emigrated from them to the fields. He says before each swarm of them we have had a dry Summer, which would allow them to develop large quantities of moths, the caterpillars being better able to arrive at maturity. And the spring following has been wet, driving the moths up to the high land to lay their eggs, which would produce the immense numbers we see. This theory will do very well if they are found to lay their eggs in the spring, but Mr. Walsh thinks that they lay their eggs the same summer, and he brings forward very strong reasons for thinking as he does. I am sorry that I cannot add any information of my own, but I was unable to keep my moths till they laid their eggs.

In a letter to Mr. F. W. Putnam, May 15, which has been kindly lent to me by that gentleman, Mr. S. P. Fowler says, that "There appeared to have been some eggs deposited around the sides of the flower pot (in which the moths were) and had the appearance of being interwoven with a cotton substance. Some writers I notice say that this insect deposits eggs near the roots of grass in sacks resembling cotton. Those I noticed were not enclosed in a sack." I do not feel at all satisfied with these eggs, for I do not know of any Noctuid depositing its eggs in this manner in a cottony sub-

stance; they are always laid close together and perfectly uncovered, in irregular patches. May these not have been the cocoons of minute ichneumons enveloped in their loose silk.

I saw the worms at work in an oat field belonging to Mr. Everett at the Rock, Middleboro', Mass.; it was the only field in that vicinity which was troubled by them, as far as I could learn from the neighbors. I am not certain but I think that this sloped down to a meadow from which they may have come. I put some of them in a box and carried them home with me; they went into the ground July 31, to transform into pupæ; it took them two or three days to cast their larva skins and become pupæ, and on the 16th of August they came out perfect moths.

The time of appearance varies in different localities; according to Mr. Kirkpatrick, in Ohio below the latitude of about 40° N., they were two or four weeks earlier than north of that line. In Sydney they changed into pupæ June 16th, into moths July 7th, while only eighty miles farther north, in Cuyahoga Co., the caterpillars were observed, Aug. 1, changed to pupæ Aug. 6th, and allowing at least a fortnight to transform, they probably turned to moths Aug. 20th. It seems very strange that so little difference in space, should make so much in time, over six weeks to eighty miles, and yet they could not have been different broods. The worms I found at Middleboro' came out Aug. 16th, about the same latitude as the brood at Cuyahoga Co., which came out about the same time. In Danvers Mass., Mr. S. P. Fowler, noticed them first, Aug. 1, a little later than I found them at Middleboro'. Probably this difference would be much increased if we should take greater distances, and we should find in the Southern States, there were two broods, while there was only one farther North.

I have never seen any description of the eggs of the army worm nor of the young larvæ. Mr. Walsh thinks that there are not two broods in a year at the North, and consequently that the eggs must be laid in the summer. Mr. Fowler's observation would go to prove this. I have room for only an abstract of his reasons: First,—they are never found in meadows the year after seeding, while if the eggs

were laid in the Spring, there is no reason, why they should not be found. Second,—they are scarcely ever found in wheat or rye, except when they have travelled from grass meadows. Third,—No one ever saw the second brood, and the grasses are too hard for them to eat when they would be hatched. Fourth,—they would form an exception to the rule among *Noctuids* which are single brooded. I have not sufficient data to decide between the two opinions, but it seems more probable that Mr. Walsh is right.

He thinks that the eggs are laid soon after the moths leave the pupæ, and remain on the stems of grass near the root, until the following summer or spring; the caterpillar gets its growth in four or five weeks, doing the principal damage in the last week of its larval life. Those that I saw working at Middleboro' mounted the oat stalks and eat the blade of the leaf, as far as the part that sheathes the stem, thus stripping the whole field of leaves, and making it look like a plantation of canes; they also tried the heads but found them unpalatable, so they eat but few, though they cut off very many and allowed them to drop, to such an extent that the ground was strewed with them. They fed morning, evening and night, protecting themselves from the hot sun at mid-day, coiled up under leaves or loose earth at the bottom of the stalks. I have not heard of their eating any plants except those which belong to the family of grasses and the delicate shoots of the turnips. When they have stripped one field, they march to another. In the *Prairie Farmer*, July 4th, 1861, we find the following description of their march.

“An army of them was observed to travel sixty yards in two hours, in an effort to get around a ditch. They began to travel from the infected districts between two and three o'clock, P.M. Toward sundown the tide of travel was retrograde. They did not travel at night. They fed chiefly by night, and in the forenoon. As to their number, they have been seen moving from one field to another *three tiers deep*. A ditch has been filled with them to the depth of *three inches in half an hour*.”

When full grown they measure about 1.5 inches in length; the head is light brown, as large as the next seg-

ment, it is marked with dark brown, as if covered with a lace veil, a longitudinal stripe of the same color in front, on each side a smaller one. Body dull greenish, lighter on the belly, an almost continuous white line on the back, with a wide dark one on each side, fading off from it, till it reaches another black stripe, then another white one tinged with reddish brown, bordered with black, a fine white one, another black one, in the lower border of which are the very black stigmata, next a fine white one, another reddish brown, lighter than the others, another fine white one, and last the belly, greenish brown, variegated with fine brown spots; ten prop legs, naked, some much lighter than others.

When they have arrived at this state, they leave off feeding, and go into the ground, where they cement together the earth around their skins, and turn into pupæ of a mahogany color. The chrysalis or pupa remains quiet until it bursts its shell and comes forth a moth; in about half an hour it has its wings expanded and ready for flight; it then flies around, pairs, and deposits its eggs, not living probably over three weeks in this its final state.

The fore wings and front part of the body of the moth, are reddish brown; on each fore-wing, a little beyond the middle, there is a bright white spot, from this, nearly to the body, a black line runs along the median nervure, half way between this spot and the outer margin of the wing, is a row of black dots, one to each nervure, from the front branch of the median nervure a black line runs obliquely to the apex; there is another row of black dots beginning at this line and extending to the inner angle, a dot alternating with each nervure. The hind wings are pearly grey, lighter towards the body, particularly underneath. The hind body is blueish grey. The legs, underside of the body, and collar-like band above the head, are lighter; the antennæ are also lighter at the base; the tongue is well developed. Expands 1.7 inches. A very accurate and scientific description of the insect will be found in the sixth annual report of the Secretary of the Maine Board of Agriculture, 1861, on the 130th page, by A. S. Packard Jr.

Among the higher animals parasites are inconspic-

uous ; not so in insects, here they occupy an equal footing with those which they destroy. The parasites of the army worm are quite numerous. There is at least one of the Diptera, the *Senometopia militaris*, Walsh. And among the Hymenoptera, we find *Ophion purgatus*, *Mesochorus vitreus*, Walsh ; *Pezomachus minimus*, Walsh ; *Microgaster militaris*, Walsh ; *Ichneumon Leucaniæ*, Fitch ; and one or two others figured in the last edition of Harris under the article on the army worm. The *Chalcis albifrons*, Walsh, is parasitic on *Pezomachus minimus* ; and *Glyphe viridascens*, Walsh, on another ichneumon ; thus are counter-checks brought to bear upon the checks themselves. The *Calosoma Calidum*, though not a parasite, destroys a great many of the caterpillars.

But not only are insects our friends, but also the birds greatly benefit us, far more than enough to pay for the harm they do. The army worms are eaten greedily by all our black-birds, crows, robins, &c. So let our interest cry mercy with our pity, and protect our beautiful feathered friends.

In spite of all these natural checks, we see that sometimes the insects are permitted to increase beyond their place, and it becomes necessary for us to protect ourselves against them. I will now therefore proceed to consider the methods which have been found the most effectual for keeping them in check, and protecting our crops from them.

If it is true that they lay their eggs in Summer near the roots of the grass, we have all the knowledge of their economy we need to enable us to fight against them in the surer way ; we know every stage of their life, and have only to find the best means of attacking them in the different circumstances under which they present themselves.

It appears from Mr. Walsh's investigations, that the best time to destroy these insects is at the beginning of their existence, while they are still in the egg ; all that is necessary to accomplish this result is to burn the fields in the dead of the year ; by so doing all the eggs in the grass are burned, and the fields are much improved, the old stubble is removed, while the ashes contain all the chemical constituents which would be left if the stubble was allowed to decay in

the natural manner. It was found that the fields which were burned Winter before last, last year were free from the army worm; so theory and facts agree as to the utility of this process. It seems to me also that this is the easiest, least expensive, as well as the surest means of prevention.

When the worm has appeared, (it not having been destroyed in the egg,) we must provide the pound of cure, the ounce of prevention not having been forthcoming; there are two ends to be aimed at, first, to prevent them from getting into fresh fields, and, secondly, to destroy them in those already infested. The most successful method for accomplishing the first object, is, according to Mr. Kilpatrick, to plow two furrows three feet apart, and as deep as will be made by going over each furrow three times, the side of the furrow towards the field should be very steep, as otherwise the caterpillars would be able to get a foothold and climb up; the sides should be reformed after every rain, since the water washes them down and makes them hard enough to enable the insects to climb up. In the second place, where they are in a field, we must expect to lose the greater part of the crop; the best thing appears to be to cut the crop as soon as they are discovered, and remove it at once, as they continue to eat the fallen grain; then turn in the hogs, poultry, &c., and they will have a great feast and fatten on the insects and the grain which they had dropped. In this way the whole crop will not be lost and the chance for the next year's crop will be much improved.

I do not think it would pay to try to destroy them while in the ground; the best way to do it that I can think of would be to turn them up with a harrow, and turn in the hogs and poultry as before. In the moth state, the best method of destroying them, is that suggested by Dr. Harris for the tent caterpillar, namely to build bright fires at night where they abound, into which they fly blinded by the light.

The ichneumons were so industrious last year, in one lot killing fifty-four out of fifty-six, that we may hope their ravages will be much smaller this year, but in some places, I see no reason why they should not be even more plenty, for instance among those I brought from Middleboro', not more than ten per cent, were destroyed in this

way. If the eggs were deposited in large numbers, I see no reason why they should not do well, because all our injurious Spring insects seem to be plentier this year than common, for instance, the *Clisiocampa decipiens* (*americana* of Harris) the common caterpillar, the canker worm *Anisopteryx vernata*, *Vanessa Antiopa*, *Chyllopaga quercina* the dor bug, and others not so well known.

I have seen in the newspapers that the army worm has appeared in the southern part of this state, and also in Kentucky, but I do not know how large its numbers are. If the proper care is taken, I do not think we need be troubled about them; it was the suddenness of their appearance and our ignorance of their habits, which gave them the importance they had last year; now we are prepared for them, and need not have any care except to protect ourselves.

The chair remarked that the Army Worm was not the only insect found with us that deserved our study. He had brought specimens of one which seemed to be but little known, and which he considered worthy of investigation. It infests the Gooseberry and Currant bushes, but he had never noticed them so doing, till the present season.

S. C. BANCROFT, of South Danvers, thought the creature was no new comer, but perhaps had taken to new fields of depredation. He was sure he had been long familiar with it, and had often seen it on the Woodwaxen.

F. W. PUTNAM, of Salem, made some further remarks on the subject, when on motion of Rev. C. C. BEAMAN, of Salem, the matter was referred to the same committee who had just reported on the Army worm.

ALPHEUS HYATT, of Cambridge, gave the result of his geological observations upon Ship Rock and other boulders in the vicinity, and explained the researches and conclusions of Agassiz, and others, on the great drift formation

and its probable connection with a stupendous system of ancient glaciers.

C. M. TRACY of Lynn, gave some description of the plants gathered during the day. Among these were found an *Azalea*, a *Kalmia*, several *Silenes* or Catch-flies, an *Utricularia*, or Bladderwort, and some of the Cornels, with many species of other kinds. By request he gave some exposition of the character and habits of that pest of the pastures, the Woodwaxen. Among the Pea family, to which this plant belongs, it presents an anomaly in its simple leaves, the general tendency of all leguminous plants being toward compound ones. The Woodwaxen ripens abundant seeds, and spreads itself with great rapidity; yet it has never found congenial soil far beyond Eastern Massachusetts or, in fact, beyond Essex County. It is said to afford a fine yellow dye, but it is doubtful if any such use has been made of it in this region. Like all troublesome plants, it is beset with methods for its extirpation; plowing, mowing at flowering time, and feeding down with sheep, being all recommended. It never comes into cultivated lands, or rarely, and therefore the operation of these means against it has probably never been fully tested.

Dr. GEORGE OSGOOD of Danvers, the veteran botanist of the Institute, followed in a course of remarks on the plants found by him, evincing the unabated enthusiasm that always marks his botanical efforts.

F. W. PUTNAM took the opportunity to speak of the collection of insects and other small animals, made by a class of his pupils in Salem. Moths and beetles, with a rare dragon-fly, appeared among the insects, and a variety of snakes, toads and frogs, made up the set. Mr. P. explained

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the transformations of the latter creatures very happily, and also alluded to the large variety of spiders that had been found, representing a highly interesting, but poorly understood class of animals.

GEORGE D. PHIPPEN of Salem, had found a specimen of the common Red Clover (*Trifolium pratense*) which, by some obscure process of nature, had produced its flowers of nearly a pure white. This was made the basis of remarks on hybridization and the origin of varieties among plants.

Mr. BANCROFT had often heard of an animal called the "Hair Snake" found in stagnant water, and said to originate from the hair of animals. He would like to have information about this creature, which he had often seen.

Mr. PUTNAM said, in reply, that this was one of the idle stories used by those who knew nothing of science, to explain facts without the trouble of observation. The truth was, a real hair could never become a living animal under any circumstances. The *Gordius*, or Hair Snake, is a true and legitimate creature, with a regular progressive development and the condition in which it so resembles a hair, is one of its stages. It bears considerable affinity to the tapeworm and others belonging to that class.

T. M. STIMPSON of South Danvers, made a few remarks upon this meeting at the Bowlders; expressing much interest in the suggestions of Mr. Hyatt on the subject of glacial action, &c., and concluded in offering a vote of thanks to Mr. H. for his instructive and interesting remarks; unanimously adopted.

On Motion of Rev. C. C. Beaman, voted that the thanks of the Institute be tendered to the proprietors of the Chapel, and to Mr. Joel F. Needham and others for civilities and attention. Adjourned.

Thursday, Aug. 7, 1862.

FIELD MEETING AT ROCKPORT. The extension of railroad communication from Gloucester to Rockport, recently opened, contributed, probably, to attract the large party who went in the early train to visit the extreme settlement of Cape Ann. Not only nearly all of those whose pleasant countenances usually enliven these meetings were there, but many were noticed; visitors from places further away, devotees of science, seeking much anticipated pleasures under the patronage of the only society that holds "field meetings," in this region.

The dispersion of the explorers was, of course, in many directions, as usual. A part set out for Long Beach, a part to Pigeon Cove. Some examined the shore, and some the interior, or mused and studied among the memorials in the old burial ground. But much the largest division turned toward the great institution of Rockport—the granite quarries. Here they rambled and enjoyed themselves; hammering out the curious crystals, or watching the varying movements of the derrick, the steam-pump, or the powder-blast.

Reassembling at Johnson's Hall, the company disposed of a plentiful repast, and at half past one o'clock, the formal meeting was called to order by Vice President A. C. Goodell of the Historical Department.

Records of preceding meeting were read.

Donations were announced from the following:

To the Cabinets—from Richard Phillips Jr. of Topsfield; James B. Curwen; David Thomson; George F. Flint of North Reading; Mrs. I. Ward; William H. Foster; W. G. Webb; Dudley Weeks; Reuben W. Ropes of New York.

To the Library—from Joseph Cloutman ; B. Barstow ; W. G. Webb ; F. Peabody ; Charles L. Flint, Secretary of Mass. State Board of Agriculture ; Department of the Interior, Washington, D.C. ; Estate of the late D. A. White ; Montreal Society of Natural History ; Philadelphia Academy of the Natural Sciences ; Canadian Institute at Toronto ; C. B. Richardson of New York ; Charles A. Ropes.

Among the donations announced was a fine specimen of *Orthogoriscus mola*, or sun-fish, which was taken in the Bay a few weeks since by Capt. David Thomson of this city. This specimen was smaller than the one described by Storer in his Report on the Fishes of Massachusetts being forty inches in length, breadth two feet, and from the tip of the anal to that of the dorsal fin about four feet six inches.

A specimen of *Emys Meleagris* of Agassiz, described by others under the name of *Cistuda Blandingii* taken in North Reading, was presented by Mr. George F. Flint. The above facts are worthy of record, on account of the rarity of these species in this vicinity.

Letters were read from F. G. Sanborn ; Department of the Interior ; J. L. Russell ; Smithsonian Institution ; C. M. Tracy of Lynn ; S. Barden of Rockport ; Sidney Barnett of Niagara Falls ; Carleton A. Shurtleff of Brookline B. R. Symonds.

Rev. STILLMAN BARDEN of Rockport, our entertainer for the day, then introduced to the meeting NEWELL GILES Esq., President of the Rockport Branch Railroad, who said he did not propose to make any speech, that would be done for him by his friend who had introduced him. But he would express the pleasure he felt in meeting the members of the Institute to-day, and would assure them of the feeling of

cordial welcome with which their friends of the town received them.

Mr. BARDEN would act on his friend's suggestion so far as to give a slight delineation of the geology of this region. It was, in fact, a pleasure to speak thus to a company from such various localities, most of whom, probably, never visited these quarries before. This is a region of hard, stern granite; unpoetical, perhaps, but full of interest to the mineralogist. The rock seems like sienite, from the very dark hue of the mica, but is yet a true granite with all the value of that eldest of all the rocks. Within some thirty years three veins have been found in it, where the components have crystalized more separately, and in larger masses than common; and here a variety of rare minerals had been gradually detected. Among these the showiest and best known was the Green Feldspar. Black Mica was found in good specimens, and Quartz of very fanciful colors and fine forms.

Mr. FRANCIS ALGER of Boston, pursued the subject with some description of another mineral detected to-day, which had occasioned some discussion. Some had thought it Iolite, but he rather supposed it to be Fluor Spar. He had been especially interested in examining the trap dykes that cut through the primary rock, and the alterations in that rock, induced by the intrusion of these once molten masses. The Green Feldspar of this place he thought quite equal to that from Siberia.

JAMES J. H. GREGORY of Marblehead said that some curious facts as to the crystallization of this granite might be detected in the structure of the rock as it is to-day. Masses of other kinds than granite were inclosed in it, themselves

crystallized like the matrix, and both homogeneous. They were, when shut up here, solid enough to keep their mass and yet fluid enough to crystallize most perfectly. Granite was, indeed a most interesting subject of study. The two projecting piers, of Rockport and Marblehead were granite breakwaters, defending Boston Harbor from much of the force of the terrible "northeasters." As a paving stone, nothing was better than granite; trap indeed was, from the nature of its fracture, better for macadamizing, but did not wear as well for pavement. As a soil-maker, granite, especially the sienitic sorts produce better fruit than any other formation; the feldspar, when decayed, was a good fertilizer, as well as essential to the porcelain-maker. But the great use of the granite is as a water-bearer. Nothing else compares with it in this, as we at once see by comparing the water of such a region with that of a limestone country, and the effect on the health of the people, observable in either case.

STEPHEN D. POOLE of Lynn was sorry not to have more time to examine the mineral treasures which the quarries would evidently furnish. He had made some study of the mineral spoken of by Mr. Alger. It was something like Iolite in appearance, but he believed it was Fluor Spar. He had known Fluor to be mistaken on first sight before. Some was found at Lynnfield a few years ago, and called Amethyst, till chemical tests settled its real nature.

Rev. E. B. EDDY of Portsmouth, N.H., had, as a mineralogist much enjoyed this day. These minerals were often spoken of as mere stones, but they were real gems. There should be more eyes and hands at work to save them. He was told that to make the foundation of the breakwater

here, tons of this very rock containing these beautiful crystals, had been thrown into the sea like rubbish. Never let it happen again. Agate might be found here, in a broken state; probably it is brought here from Labrador by the floating ice. Other minerals will repay the search, if all, ladies and children even, will study and collect what they may.

REV. JOSEPH BANVARD of Worcester, late of Salem, gave an address of exceeding interest, stating the incidents of what he called his conversion to the importance and beauty of Natural History. The delights of communion with the Great Architect through his lovely works, were vividly depicted, and the speaker declared that to him who approached the study for the first time, it was like the addition of another sense.

DR. GEORGE OSGOOD of Danvers introduced the botanical part of the exercises by exhibiting his collection of specimens, some of which he regarded as rather unusual and interesting. But his years rendered him, he said, incapable of speaking, or doing more than show himself and his attachment to science. He wished his friend Tracy would speak for him.

C. M. TRACY of Lynn, was always glad to testify to the value and attractiveness of botanical pursuits, at every proper time. But this occasion needed nothing from him. Here was a man of eighty years, a botanist from youth, standing before them to say that he loved his world of plants as well as ever. Again, this was hardly a fit occasion for botany, for Flora seemed very properly overruled in favor of Pluto. These ancient rocks, the strong casket of so many jewels, were, under the eye of such students as we

see here, material enough to repay the study and discussion of hours, nay, days, uninterrupted by anything on other topics. He further explained a few specimens, and spoke of the constitution of the soil here, as connecting the mineral and vegetable worlds, and showing, as everywhere, the influence of the rock on the plants it sustains.

GEORGE D. PHIPPEN of Salem, on being called upon, stated that he had greatly enjoyed the day's ramble, and appreciated the attention and skill of the guides who well understood the chief points of scientific interest of this remarkable place; but that which most engrossed his mind was the grand expanse of the Atlantic, here spread out to the view,—the same broad old ocean over whose ever-heaving waves our father's first came to these shores, and which with its everlasting rocky fringe must appear to our eyes to-day, almost precisely as it did to theirs two centuries ago. In answer to some inquiries as to parasitical plants, Mr. P. said that we had only one true parasite in this region, to wit, the Dodder. This is a very elegant as well as curious plant, and will reward any one for their study of it. He formerly tried the cultivation of it with very gratifying success.

Mr. A. E. VERRILL of Cambridge, at the request of the chair, gave a short account of the few marine animals on the table; after which he presented a sketch of the classification of Birds, as adopted by most of the leading ornithologists of the day. Though naturalists have always agreed as to the limits of the class, they have differed widely as to the way in which it should be subdivided into minor groups. Thus the number of orders admitted among birds by different naturalists, varies from two to twenty-eight.

The arrangements which have been most generally adopted in this country are slight modifications of those of Linnæus and Cuvier. Perhaps the one best known is that admitting seven orders, viz:—

Raptores, or birds of prey,
 Insessores, or perching birds,
 Scansores, or climbers,
 Rasores, or scratchers,
 Cursores, or runners,
 Grallatores, or waders,
 Natatores, or swimmers.

Most authors have put the birds of prey at the head of the list, as the highest or most perfect birds. This on many accounts seems wrong, for if we examine those birds which have all the characters that are commonly considered bird-like in the greatest perfection, we shall find them not among the Raptores, but among the singing birds of the order Insessores in the arrangement above. Some authors have put the parrots highest on account of their fleshy tongues, analogous to those of mammals, but the same objection applies to this arrangement, since this character is an aberrant one, and not essentially bird-like, and besides this, in other characters, the parrots do not approach the mammals so closely as many of the other birds.

A peculiar classification of birds, first proposed by Oken, but carried out in its details by Bonaparte, is worthy of our consideration. It has certainly the merit of novelty and in many respects seems more natural than any of the other systems. By this method of classification, birds are divided into two sub-classes, according to the state in which the young are hatched from the eggs. All those birds of which the young when hatched are very immature and

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helpless, and feed from the mouths of their parents, are called *Altrices*. The common Robin is a good illustration of this group. Other birds, like the hens and ducks, have young which are able to run about and take care of themselves, in part at least, as soon as hatched. These are called *Precoces*. Each of these sub classes is to be divided into several orders, but Bonaparte himself has made various alterations in the serial arrangement of the orders and sub-orders in his published papers. If we place the singing birds highest, as I have proposed, instead of the parrots, the following arrangement, though somewhat different from either of those of Bonaparte, seems to me the most natural.

Of the *Altrices*, the first order will be the *Passeres*, including the singing birds or *Oscines*, as well as most of the other small perching birds; second the *Scansores* including the parrots; third the *Accipitres* or birds of prey; fourth the *Columbæ* or doves and pigeons, and perhaps, also, the Dodo, which is very little known, and forms, in one of the arrangements of Bonaparte, a separate order, called *Inepti*; fifth, the *Herodiones*, including the herons, cranes and the like; and sixth the *Gavia*, with two sub-orders embracing the gulls, albatross, pelicans, cormorants, &c.

In the second sub-class or *Precoces*, there are four orders; first, the *Gallinæ*, including the hens, pheasants, &c.; second, the *Struthiones*, embracing the ostrich and other similar birds; third, the *Grallæ*, containing the plovers, sandpipers, and the like; fourth, the *Anseres*, including the two sub-orders *Lamellirostres*, or ducks, geese, etc., and *Brachypteri* or auks and divers. The penguins in the latest arrangement of Bonaparte form a distinct order, the lowest of the *Altrices*, but previously they had been placed as a sub-order, *Ptilopteri*, under the *Anseres*. The Flamingo which has been placed among the waders, with the

herons, by most writers, on account of its remarkably long legs and neck, and by others with the swimmers on account of its webbed feet, seems to be very closely related to the ducks and geese by its anatomy, motions and habits, and would form a family in the sub-order of Lamellirostres.

One of the most singular features in this classification is the analogy or parallelism existing between the lower orders of the Altrices and those of the Precoces, similar to that between the families of the marsupials and those of ordinary mammals. Thus the order of Columbæ will be parallel with Gallinæ. Herodiones with Grallæ, and Gaviæ with Anseres, so that we have a scratching order, both among the Altrices and Precoces, a wading order in each group, and a swimming order in each. In a tabular view they will stand thus:—

ALTRICES,	PRECOCES,
<i>Passeres</i> , Oscines Clamatores,	<i>Gallinæ</i> ,
<i>Scansores</i> ,	<i>Struthiones</i> ,
<i>Accipitres</i> ,	<i>Grallæ</i> ,
<i>Columbæ</i> ,	<i>Anseres</i> , Lamellirostres,
<i>Herodiones</i> ,	Brachypteri, Ptilopteri?
<i>Gaviæ</i> , Totipalmi, Longipennes,	

Rev. A. E. P. PERKINS of Ware, said that the study of the habits of birds was replete with curious interest. He had noticed cases of the most striking instinct exhibited by them. The story of the Cow Black-bird placing her eggs in a nest, not her own, was familiar to all, but he had seen some very singular modifications of this practice, and amusing expedients of the two birds, the owner of the nest and the intruder. He had known something of the classification spoken of by Mr. Verrill, but did not like it, it seemed artificial and forced, breaking, rather than strengthening the obvious natural orders.

Mr. VERRILL replied, and some discussion ensued.

Rev. JOSEPH B. FELT of Salem, then read an historical sketch of Rockport, including notices of prominent families, statistics of industry, and many other matters of local interest. (Printed in Hist. Coll. of Inst. vol iv, p. 162.

Rev. C. C. BEAMAN of Salem, thought all present had deeply enjoyed this excursion. He, too, delighted in this free view of the ocean, so grand and elevating, and so well calculated to awaken every sublime emotion of the human soul.

Mr. A. HYATT of Cambridge, gave a brief exposition of the theory of the Drift Formation, as now generally received, and also explained, at some length, the peculiar action of waves and oceanic currents in forming pits, ridges, and other inequalities in the sand.

Rev. G. S. WEAVER of Lawrence, bore testimony to the extreme pleasantness of this occasion. He wished he could have the opportunity, now and then, of enjoying such a season, near home. If the Institute would arrange for an early visit to Lawrence, he could assure them of a most hearty welcome.

It was then on motion of THOMAS M. STIMPSON, Esq., of South Danvers. (who supported the motion with agreeable remarks.)

Resolved, That the thanks of the Members of the Essex Institute be tendered to those ladies and gentlemen of Rockport, who have so kindly given their time and services in aid of the objects of the Society; to those by whose liberality the use of the Hall has been granted for our meetings; and to all others who have contributed to render our visit one of pleasure. Adjourned.

Thursday, Aug. 21, 1862.

FIELD MEETING AT HAMILTON.—A fine day induced the attendance of very many to this meeting, although the spot was by no means an unfamiliar one, having been the scene of more than one visit by the excursionists of the Institute already. But a really good thing seldom tires; and so our friends again came from various directions, a few at a time, in carriages or on foot, and made up a very interesting company, larger than would have been thought, from the appearance of the arrivals.

The diversified surface in this vicinity speedily attracted the attention of the active explorers, some searching the ponds for aquatic plants and animals, some threading the woods and thickets, and others studying the more solid substratum of rock and soil below the whole. A few had come through the woods from West Beach and had much to show and more to tell of the pleasant things met in that path among the ponds.

The meeting for the afternoon was called to order on the spacious platform kept by Mr. Whipple of the place, for dancing uses, when Hon. ALLEN W. DODGE of Hamilton, was chosen chairman, and in an eloquent manner welcomed the Institute to this town of his adoption. He was glad to see so many present, of all ranks and pursuits. He wished he could say a word to induce every one to look as he did upon the works of God in surrounding nature, and enter heartily into their study from this time, as a means of self-culture and improvement.

J. J. H. GREGORY of Marblehead, then proceeded briefly to discuss the geological constitution of this region, referring largely to that of Cape Ann, and drawing, in imagina-

tion, an historical picture of the geological changes that have heretofore passed upon these hills and valleys around us. Considering the unpromising aspect of granitic and sienitic rocks, we might be led to suppose that a soil formed from them would be sterile; but here the soil has precisely this origin, and its richness is a constant correction of such preconceived errors.

Rev. JOSEPH B. FELT of Salem read a short historical essay on the early times of the town of Hamilton, when it existed as part of old Ipswich. Among the peculiarities of the place he adverted to a line of families among the inhabitants who, from some singular quality of constitution, are and have been known as "bleeders." These persons bleed profusely, and dangerously, even, from the least scratch; and some remarkable facts as to the hereditary descent of this affliction, help to invest the case with much of deep and painful interest. (Printed in Historical Collections of the Institute, vol. iv. page 225.)

Mr. GREGORY inquired what was the meaning of "Naumkeag," the Indian name of Salem.

Mr. FELT said he believed Cotton Mather had defined it as "peace."

Mr. GREGORY thought it merely meant "good fishing place," and was applied to many places along the shore.

Mr. FELT doubted this, and thought this last was rather the interpretation of "Agawam," once the name of Ipswich and several other places.

C. M. TRACY of Lynn, had been one of those who made the delightful excursion up from West Beach, under the excellent guidance of Mr. E. Knowlton. The vicinity of the ponds, where traversed by the West Beach Road, is remarka-

ble for its growth of beech, the extensive woods of which wear a singular look to him who has dwelt habitually among no forests save of pine and cedar. In these beech woods, and around the ponds, are the haunts of many of Flora's choice works; and not a few of these had been met by him in the walk. Some of these he had brought along for farther remark, such as the Blue Vervain, the Coreopsis and Rhexia, the Willow-herb, the Dwarf Cornel, the Cardinal Flower, and several others.

Mention being made of the Sunflower, the Chair asked if there was any truth in the assertion that it turned toward the sun. Mr. Tracy replied that there was none whatever. Tom Moore's beautiful poetry to the contrary notwithstanding.

GEORGE D. PHIPPEN of Salem, gave a somewhat extended discourse on the plants that furnish a fiber for textile uses. Four families, typified respectively by the Mallow, the Milkweed, the Flax and the Nettle afford almost all of this for common use. The two last are sources well known; but the ability of the Milkweed to furnish a delicate and commendable fiber is not well understood. Mr. P. had collected and brought to the meeting selections of such plants as yield beneath their outer bark a strong fibrous tissue known as the bast tissue, and which may be prepared and woven into textile fabrics. He dwelt largely upon the *Asclepias cornuti* or common Milk or Silkweed, so abundant in the fields and along the road sides throughout a large extent of the country. He also exhibited beautiful specimens of workmanship, both prepared, spun and wrought from the fibre of this plant, by the hands of Miss Margaret Gerrish, late of Salem, deceased, and recently presented to

the Museum of the Institute. These consisted of purses, work-bags, socks, skeins of thread of different colors, also samples of paper from the macerated fibre, together with considerable quantities of the prepared fibre, of great length, (being the length of the stem,) and having, as all the manufactured articles did, a silvery lustre, considerably resembling silk.

There were also exhibited specimens of the living plant with its novel and honey-laden flowers, and portions of the stem and fibre in various stages, showing its manner of growth and preparation. Specimens prepared by Mr. P. from the fibre of other plants were also presented; such as that from the tall nettle, so plentiful about the stone walls, *Urtica gracilis*, and *Apocynum cannabinum*, or Indian Hemp, *Celastrus scandens* or waxwork and other plants; proving conclusively that with these, in addition to Flax and Hemp, under the ingenious appliances of cultivation and machinery, we need not be dependent upon the South or any part of the wide world for material with which to answer that important and industrial question, "wherewithal shall we be clothed."

C. C. COFFIN, Esq., of Malden, known as "Carleton," of the Boston Journal, being invited, entertained the meeting with a vivid account of the memorable gunboat fight before Memphis on the Mississippi. That famous engagement ended the hopes of the rebels as to the production of a Navy. But there were other things than Navies to be conquered in this war; and of these, not the least was that remarkable female influence that from the first had sustained and stimulated the rebellion. Only by an equal awakening of the free born women of the north, can we ever oppose a fit and sufficient instrument to this restless, this powerful auxiliary of southern enormity.

J. L. SIBLEY of Cambridge, and Librarian of Harvard College, had come down with a friend to see what kind of a thing a "field meeting" might be. He had heard something of these gatherings; but he had not expected to find in them so much that spoke of the active, *living* study of nature, and of the thousand wonderful and lovely things she spreads around us. And as no one in this life knows what may be the consequences of his acts, how much we may be left to inquire, as resulting, one day from such exercises as these. Here was a dissertation on the almost unknown fiber of a common plant. Who can tell what results may follow from what that speaker has told us on that subject, results, perhaps, as broadly affecting the country as the growth and use of cotton already have.

A few other gentlemen favored the meeting with remarks, after which, on motion of Mr. BEAMAN of Salem, the thanks of the Institute were voted to Messrs. John Whipple and Edmund Knowlton, for their efforts to render the meeting successful and pleasant, and to all our friends in this vicinity. Adjourned.

Wednesday, September 17, 1862.

FIELD MEETING AT ROWLEY.—This was the last of the series for this year, and nearly one hundred from other towns availed themselves of the opportunity to visit this time-honored old place, where cluster so many memorials of the past, highly interesting to the antiquary and to the student in our early history. The assemblage were welcomed at the Town Hall, by Rev. JOHN PIKE, the "parson of the parish," in a few remarks of great kindness; after which, dispersing in various directions, the visitors spent the usual

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amount of time in exploration and research. A general return of these wanderers having been affected, the formal meeting was opened in the Town Hall, at 3 P.M., Vice President A. C. Goodell, presiding.

Records of the preceding meeting read.

Donations were announced—

To the Library—from L. Peirson Ward ; M. Savory of Georgetown ; Zaccheus Gould of Topsfield ; Canadian Institute at Toronto ; Henry Barnard of Hartford, Conn. ; Jonathan Perley, Jr. ; C. B. Richardson of New York ; Mrs. E. Putnam ; Boston Society of Natural History ; Philadelphia Academy of Natural Science.

To the Cabinets—from William Mack ; L. Peirson Ward ; Miss Rebecca Johnson of Cohasset ; Benjamin Felt ; James B. Curwen ; Charles A. Putnam ; S. B. Buttrick ; Alfred Stone ; Rufus Wendell ; W. L. Leach ; J. Wingate Thornton of Boston ; Reuben W. Ropes of New York.

Letters were read from Trustees of New York State Library ; Pennsylvania Historical Society ; Trustees of Boston Public Library ; S. Barden of Rockport ; A. E. Verrill of Cambridge ; William Barry of Chicago ; R. H. Bacon ; A. W. Dodge of Hamilton.

A circular was read from the American Pomological Society, requesting a delegation from the Institute to the Convention in Boston. Referred to the President of the Horticultural department, with authority to act.

Rev. C. C. BEAMAN of Salem, gave a summary of the historical work of the company about the place. This was the town where Rev. Mr. Bradford established a Divinity School, seventy or eighty years ago, having for one of his

pupils, Rev. Joshua Spaulding, afterwards of Salem. Here, to-day, they had visited the old Jewett House, built more than two hundred years ago, and seen in it a clock thought to be some three hundred years old, it having been set up in Dorchester sixteen or eighteen years before the settlement of Rowley. It is inscribed "Richard Masterson at ye Diall within Moore Gate." Dummer Academy, one of the ancient institutions of the Commonwealth, had also been visited. Unlike most other such, it has outgrown its tenement twice over, and now inhabits the third building provided for its use. An examination of the old burying ground here had also revealed a store of facts interesting to the historian and antiquary.

Rev. J. B. FELT of Salem then read a paper on the early history of Rowley, largely relating to the character and labors of Rev. Ezekiel Rogers, the first and most noted of her ministers.

Rev. JOHN PIKE of Rowley remarked that but for an inadvertance, the company would, in the morning, have been invited to the private gardens in the place, of which some were worth a visit. For himself, he could fully accept the idea of Mr. Beaman, in reference to his pastorate, that that minister was fortunate, whose church possessed a worthy history. He had often felt the truth of this while seeking to minister to this ancient church; and he had come to the conclusion, that while many ministers would like to choose their successors, he would greatly prefer to name his predecessor, as a far more important thing.

C. M. TRACY of Lynn, had been very busy to-day exploring the botany of the "Stackyard Woods," in connection with a most agreeable party. The successive seasons bring

out different styles and classes of floral life, so that each gets, as it were, a distinctive mark. The late summer and autumn months are the peculiar time of the Composite Flowers. The Aster is generally taken as the type of these and is one of the most numerous. Nearly forty species are recognized in the Northern States, and of these he exhibited several. The Thistle represents one section of this great family. Yet there are plenty of other kinds of plants in autumn, as, for example, many of the pea-flowered class. In this we see to-day the Bush Clover and the Tick-Trefoil, whose seeds stick to the clothes. The Dwarf Cornel is now in fruit. It is much, on a small scale, like the Flowering Dogwood, whose bark has been substituted for Cinchona. The Prenanthes and Gentians were also spoken of, also the Canada Burnet; and some notice was taken of the Mints, perfectly free from hurtful properties, and affording an appreciable quantity of camphor.

F. W. PUTNAM of Salem, gave some illustration of the zoology of this place, producing several tree-toads, frogs, &c., also a large worm supposed to be the larva of the Five-spotted Sphynx. He gave familiar expositions of the changes of the insect and reptile life during development; and remarked on the erroneous notion that most of our reptiles are poisonous. We have no venomous species in the Eastern States, save the Rattlesnake and an occasional Copperhead. He then proceeded to describe the interior structure of the nest of the Humble-Bee, an insect only imperfectly understood, as indeed are too many of our common animals even yet. It has been estimated that there are six thousand six hundred and thirty-five species, of animals inhabiting New England. Mr. P. added some explanation of the geological record of animal life, and argued that the evidence

of any species changing its character at any period, or passing into another was not yet sufficient to warrant the statement.

A few other gentlemen offered appropriate remarks, after which on motion of N. J. HOLDEN, Esq. of Salem the thanks of the Institute were tendered to Rev. Mr. Pike, the Messrs. Smith, Prime, Harris, Hills, and Richards, as well as Mrs. Pike and Mrs. Lambert, with others whose kindness to us had been so untiring. The Institute then adjourned.

Monday, Dec. 8, 1862.

Meeting this evening at the rooms, Plummer Hall, A. C. Goodell, jr. one of the Vice Presidents in the chair.

Records of the preceding meeting read.

Donations were announced from the following :

To the Library—from J. W. Thornton of Boston ; S. A. Green, Surg. 24th Reg. Mass. Vols.; J. Morrissey of Boston ; J. B. Felt ; Daniel Barnes of New York ; Jeremiah Colburn of Boston ; O. C. Marsh ; E. S. Parker of Groveland ; H. F. Shepard ; Boston Society of Natural History ; Mrs. N. D. Cole ; S. E. Peabody ; Trustees of N. Y. State Library ; Smithsonian Institution ; John L. Sibley of Cambridge ; Miss A. M. Hemmenway, of Ludlow, Vt. ; A. B. Almon ; C. B. Richardson of New York ; Theron Metcalf of Boston ; George Livermore of Cambridge ; Philadelphia Academy of Natural Science ; A. B. Johnson of Utica, N. Y. ; Trustees of Dartmouth College , H. L. Williams ; Zoologischen Gesellschaft, Frankfort, a. M. ; D. C. Gilman of Yale College ; Joel Munsell of Albany, N. Y. ; George B. Loring ; Charles H. Dodge ; Montreal Society of Natural History ; W. P. Tucker of Brunswick, Me. ; R. Manning.

To the Cabinets—from Mrs. H. Brown ; Amos Stillman ; C. H. Norris ; S. Barden of Rockport ; E. Peabody ; Edmund Lovett of Kinsemy, W. C. A. ; H. Brown ; Edward J. Porter ; Daniel Cudner ; James H. Emerton ; John Saul ; J. Choate ; John H. Towne, Sierra Leone ; Edmund Larcom, Beverly.

The Chair presented in the name of Hon. Allen W. Dodge, of Hamilton, three volumes :—1st, by William Holloway, “The Peasant’s Fate,” published in 1803 ; 2d, by John Searson, published in 1798, “Art of Contentment” ; 3d, a volume by Rev. Samuel Willard, containing 1st, “The Fountain Opened,” and 2d, a Sermon on Christian perfection, from the text, “*Be ye Perfect,*” &c. Mr. G. gave a short biographical sketch of Rev. Mr. Willard and brief notices of the other publications.

A letter was read from Hon. Robert Hooper of Boston, presenting to the Institute, six MS. volumes, consisting of five camp journals and one letter book, which were the property of the late Brigadier General John Glover, of Marblehead, a distinguished officer in the army of the Revolution, in the name of his descendants. Also a letter from W. R. L. Ward, Esq., of New York, announcing the transmission to the Institute of a volume originally belonging to the same set which was in his possession. These valuable and highly interesting records were referred to by W. P. Upham, to prepare a report in relation thereto, to be read at some future meeting.

A letter from Hon. Nathaniel Silsbee, tendering to the Institute a donation of two paintings, by the late George Ropes, of this city,—one a view of Crowninshield’s wharf, (now Phillips’) as it was some fifty years since—the other, the launching of the ship *Fame*.

Letters were also read from J. H. Hickcox of Albany, N. Y. ; D. C. Gilman of New Haven, Conn. ; Augustus Towne of Boston ; J. Munsell of Albany, N. Y. ; Pennsylvania Historical Society ; Trustees of N. Y. State Library ; Maine Historical Society ; Museum of Comparative Zoology at Cambridge ; Corporation of Harvard College ; American Philosophical Society ; American Geographical and Statistical Society ; M. A. Stickney ; N. W. Hazen of Andover ; C. B. Richardson of New York ; J. K. Wiggin of Boston ; J. C. Hilgard of the Coast Survey ; W. C. Binney of Amesbury ; and S. F. Haven of Worcester.

On motion of Rev. C. C. Beaman, the thanks of the Institute were presented to the several donors.

F. W. Putnam presented a paper containing a list of the reptiles of the county, accompanying the same with some remarks upon the distinctive characters of the several orders. By the above list we learn that the whole number of species is 40, viz :—Salamanders, eleven ; Frogs, five ; Tree Toads, three ; Toads, two ; Scaphiopus, one ; Snakes, eleven ; Turtles, seven.

The Chair mentioned that a gentleman interested in antiquarian lore, had authorized the Secretary to purchase on his account old MSS. prior to 1700 at the rate of one dollar per pound ; from 1700 to 1750, at fifty cents per pound ; from 1750 to 1800 at twenty-five cents per pound ; the same to be deposited in the library of the Institute. After some general remarks upon the importance of the preservation of old papers, and the probability that much valuable material may be sold to the paper-makers on account of the high price of this article in the market, the Institute adjourned.

Monday, December 22, 1862.

Meeting this evening, the President in the Chair.

Records of the preceding meeting read.

Letters were read from J. H. Hickcox of Albany N.Y.; George W. Wheelwright and W. F. Poole of Boston; Massachusetts Historical Society; Trustees of the Boston Athenæum; S. P. Fowler of Danvers; S. H. Grant of the New York Mercantile Library Association.

Donations from the following were announced.

To the Library—from Canadian Institute at Toronto; C. B. Richardson of New York; Joshua Coffin of Newbury; W. S. Hiltz; Boston Society of Natural History; American Antiquarian Society.

To the Cabinets—from J. C. Lee; Shove S. Symonds.

The Secretary mentioned that several specimens of the Snow Owl (*Strix nyctea*) had been taken in this vicinity during the present season. In this connection extracts were read from the Canadian Journal, a publication printed in Toronto, under the direction of a Committee of the Canadian Institute, respecting the abundance of these birds on the shores of Lake Ontario, and of their habits. Mr. S. Passamore, a well known taxidermist in Toronto, under date of 17th of November 1862, speaks of having some forty or fifty specimens which had been shot within the past two or three weeks, in that neighborhood, some measuring five feet four inches from wing to wing. Similar numbers are stated to have appeared in 1837. Mr. Passamore gives 1833, 1839, 1853, as abundant years.

Mr. A. C. Goodell, as Chairman of the Curators of History, proposed for the consideration of the Institute the subject of "New England's Heraldry." The following is the substance of his remarks:

After alluding to the well known fact that it is claimed by the Southern Rebels that they are of better extraction, in the feudal sense, than the people of New England, he proceeded to show that this claim, though utterly unfounded, is beginning to be treated, at home and abroad, as a matter of some consequence in considering the probable event of the struggle which agitates the country.

The wholesale charge of John Arthur Roebuck, the member of Parliament for Sheffield, that the North is composed of a mixed population of people of low origin, of outlaws and criminals, while the South, on the other hand, is largely peopled by the descendants of the Cavaliers, who are therefore more nearly allied to the gentry and nobility of Great Britain, had never, in the opinion of the speaker, met the utter and general contradiction which it deserves.

On the contrary, the silence of the press and even the positive admission of some public Northern speakers, such as the Rev. Dr. Bellows of N. Y., has the effect of establishing this error in the minds of our enemies and in the public opinion of Europe. The speaker said he was glad to know that the newspaper press has, at last, begun to question the truth of this invidious charge.

Dr. O. W. Holmes, too, in the December No. of the *Atlantic Monthly*, has protested against this error, in very strong terms, in his article, "My hunt after the Captain;" also, Count Gurowski has met the accusation with a scathing denial in his "Diary." It is to be hoped that these indications warrant the belief that the public mind will soon give this subject sufficient attention. The speaker was happy to announce that in several states, persons interested in genealogical and historical studies are at this moment engaged in preparing articles, the effect of which will be to prove incontestably that a far larger proportion of the people of New England are from an ancestry of gentle and noble consanguinity than of the people of the South. Mr.

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W. H. Whitmore of Boston, the author of the "Hand-book of American Genealogy," is engaged in the preparation of a work which is intended to exhibit, as nearly as all known accessible data will allow, the relative proportions of gentry, yeomanry and nobility of the several American colonies. In the course of his investigations, Mr. W. has found that a large MS. volume, now in the library of Peter Force, at Washington, D. C., copied from a similar book in the Archives of the State Paper Office, London, being exclusively, a list of the names of criminals deported to the penal colony of Virginia, contains many names of leading families of the *chivalry* of the present day.

Mr. G. then proceeded to say that Bishop Meade's work on the Old Churches and Families of Virginia, was the only record to which Virginia has hitherto appealed to prove her general claim to Cavalier extraction. Yet we, quiet unpretending people of Massachusetts, can count more and higher names in the list of our gentility without any special effort; and when Mr. Whitmore shall have given the subject a thorough study, we shall undoubtedly, find that the proportion of noble and gentle blood in the whole population, stands, to that of Virginia, as ten to one.

Mr. G. then enumerated some of our old first families—such as the descendants of Emanuel Downing of Salem, whose son, Sir George, in 1664, united in marriage to the Howards (the family of the Duke of Norfolk,) and his descendant of the same name, founded Downing College, Cambridge, England. Also the Salem Curwens, who are descended from the Helsington branch of the Workington Curwens,—at whose head stood Gospatric, Earl of Northumberland,—one of the oldest and noblest families in Europe. Among our Puritan clergy, too, are to be found not only a large number of distinguished graduates of Oxford and Cambridge, but also many who were closely related to high ecclesiastics in the English Church. Thus we have the Nortons of Ipswich, were connected with Archbishop Cranmer; the Rawsons and Wilsons, with Archbishop Grindal, and the former also descended from Bishop Hooker; the Yales from Bishop Morton and Bonner; and the Chauncys from Bishop Still.

Then we have, in the history of New England, such names as Lady Arabella Johnson, Lady Deborah Moody and her neighbor (who was nobly descended and married a daughter of the Earl of Lincoln,) John Humphrey of Lynn; also, the knights and baronets, Saltonstall, Vane, Phipps, Pepperell and Sir John Temple of Ten Hills farm, Malden, who was descended from the same stock as the Viscounts Palmerston. Lord Chancellor Lyndhurst it will be remembered is a Boston boy. We have, too, many old families of gentry, such as the Appletons, who go clearly back to the year 1414; the Bruens, to the year 1230; the Lawrences to the year 1190, the Adamses and others. The Thorntons, also, who are descended from two Mayors of York; the Sewalls from Henry Sewall, Mayor of Coventry; and the Salem Brownes, from the Brownes of Browne Hall, Lancashire, England, a family, some of whose members removed from Salem to Virginia, and one of whom married a granddaughter of Bishop Burnet. Another family which Salem contributed to Virginia was that of the Fairfaxes. The Hon. Col. William Fairfax was a resident of Salem before he went to Virginia, in 1734. Here he married a lady, born in Salem, Deborah the daughter of Francis Clarke, Esquire, and from this union were Bryan, Lord Fairfax, and other descendants who are considered the very cream of the "F. F. V."

Col. Fairfax was Collector of the Port and lived in the house, still standing on the corner of Cambridge and Essex streets, and his wife's father lived and died in the old house which formerly stood on the Eastern corner of North and Essex streets. Letters and souvenirs from the Fairfaxes, dating from about 1750 to 1820, are still in possession of a descendant of the Clarke family in this city.

Mr. Goodell spoke also of the numerous coats of arms extant among members of our old families, and engraved on tombstones in the old burying-grounds and expressed the hope that all persons possessing such heir-looms would make their existence known to the Institute that they may be copied for Mr. Whitmore's work.

In reply to a suggestion from Rev. Mr. Beaman, Mr. G. continued his remarks by saying that doubtless many of the leaders of the rebellion will be found, like Slidell, Davis, Stephens and Hammond, to be of obscure northern birth or descent. So that the argument of superior blood by the South not only failed but was even turned against them by the facts of history.

Remarks were offered on this subject by Rev. Messrs. Beaman and Felt, Mr. G. D. Phippen, and the chair.

Adjourned.

Monday, January 12, 1863.

Meeting this evening, the President in the Chair.

Records of preceding meeting were read.

Donations were announced.

To the Library—from A. D. Bache, of the U.S. Coast Survey; American Academy of Arts and Science; J. Colburn of Boston; Samuel H. Scudder of Boston; Mrs. N. D. Cole; Caleb Foote; Trustees of Boston Public Library; Trustees of Newburyport Public Library; Robert Manning; Miss E. K. Roberts; Misses Mulligan of Newburyport; John Chapman.

To the Cabinets—from S. W. Boardman of Milltown, Me.; R. Manning; David M. Balch; Miss M. J. Scobie; G. C. Chase.

A letter was read from Dr. George Chandler of Worcester, presenting to the Institute, in the name of the Misses Mulligan of Newburyport, the Diary of Rev. Samuel Chandler, in four volumes of inter-leaved almanacs of the years 1746, 9, 50 and 51, at York, Maine; and of the years 1751, 2, 3, 4, 5, 6, 7 and 8 at Gloucester, Mass.

A brief notice of Rev. Mr. Chandler was given. Rev. Samuel Chandler was the son of Josiah Chandler of Andover, where he was born in 1713, graduated at Harvard College in the class of 1735, ordained minister of the church in York, Maine, in 1742, where he remained, occasionally teaching a school in addition to his ministerial duties, till his removal to Gloucester in 1751. In 1755, he went as Chaplain to Col. Ichabod Plaisted's Regiment, in the expedition against Crown Point. He died after a long and severe sickness, on the 16th of March, 1775, aged sixty-two.

Mr. David Nichols presented to the Institute, two photographs of Washington; one, of a small size for albums—the other considerably larger for framing. He then gave a brief history of the original from which these photographic copies were obtained; it has been in his wife's family for many years, and is presumed to be the only one of the kind known. Upon removing it from the frame recently, the following endorsement was found upon the back:—"This was done in New York, 1790, and is acknowledged by all to be a very strong likeness. B. GOODHUE." Benjamin Goodhue was a native of Salem, son of Benjamin and Martha (Hardy) Goodhue, born Sept. 20, 1748, graduate of Harvard in the class of 1766; first Representative to Congress from this district, and was a member of that body as a Representative or Senator from 1789 to 1800. This portrait was shown to many aged persons, who had seen and might remember Washington's appearance, and they all coincided in the opinion of its correctness so far as the recollection of nearly three quarters of a century could be relied upon. Letters were read from the venerable Josiah Quincy ex-President of Harvard University, Jared Sparks, Esq., and others, in relation to the subject.

Mr. Quincy, in a letter to Mr. Nichols, thus writes :—

“The portrait of Washington, certified by Benjamin Goodhue, Esq., on which you ask my opinion, certainly satisfies my recollections of him, as he appeared in 1789 and 1790. At that time I saw him twice or thrice, and afterwards several times in 1795. The certificate of Mr. Goodhue is also almost conclusive, in my mind, for he was the last man who would sign such a certificate lightly. The common likenesses of Washington, like those of Stuart, which were painted subsequently to 1789, give a false expression to his mouth, owing to having at this period, false teeth—the dentists of that day having not the skill to conceal their work, like those of the present time. I regard the portrait in your possession as quite valuable ; and if, as you state, it was a sketch of St. Memin, it has great pretensions to correctness. I well knew that artist. He had great merit, and if it be from his hand, its correctness may be depended upon, and it is worthy of preservation.”

In connection with this subject, Mr. H. M. Brooks exhibited several Washington medals, some of which were very beautiful. Mr. Brooks has had medals or coins with the impression of Washington struck from some two hundred different dies—the earlier ones were all complimentary.

An interesting discussion then followed on this subject ; after which the Chair gave an interesting account of the designs of the Mount Vernon Association in Essex County, and also of a visit he made to Ashland, the home of Henry Clay, in the summer of 1861.

Adjourned.

Monday, January 26, 1863.

Meeting this evening, the President in the chair.

Records of preceding meeting read.

Letters were read from Historical Society of Pennsylvania ; J. P. Lesley of American Phil. Society ; N. S. Howe of Haverhill ; A. E. Verrill of Norway, Me. ; W. F. Poole of Boston ; W. P. Upham ; H. Curwen.

Donations to the *Library* and *Cabinet*, were announced—from Richard H. Wheatland ; N. J. Lord ; C. P. Preston, Secretary of Essex Agricultural Society ; John S. Ives ; James Upton ; C. B. Richardson of New York, N. Y. ; Portland Society of Natural History ; S. M. Worcester ; James A. Gillis ; Horace Brown ; Thomas H. Johnson ; Henry M. Brooks ; George C. Chase ; Stillman Barden of Rockport ; Joseph Hammond.

Rev. S. Barden of Rockport, being called upon by the Chair, gave a very interesting and instructive account of his researches among the quarries in Rockport. These quarries have long possessed a great reputation for the excellent building material furnished—specimens of which may be seen in the principal cities of the Union. In the extensive quarries worked by Eames & Co., can be seen some of the best and purest granite in the country. there is almost an entire absence of hornblende. Granite contains quartz, feldspar and mica—sienite, quartz, feldspar and hornblende ; frequently the four ingredients are found combined together, viz. : quartz, feldspar, mica and hornblende ; hence the rock of this region may be termed sienitic granite.

These quarries exhibit numberless varieties in the coloring of the ingredients ; the quartz is shaded all the way from a smoky color to a light watery hue, sometimes tinged with red in a slight degree ; the feldspar of a half green color ; the mica of an ebony black—occasionally some fine atoms of the red oxide of manganese, and garnets are found

intermingled. Granite is generally very chary of its contributions of gems ; yet we have occasionally veins in which the elements of granite are crystallized in distinct masses, and in a variety of the most fantastic shapes, the quartz being mostly smoky or jet black ; the mica equally so ; the feldspar, white, buff, and occasionally of the very richest conceivable green. They always crystallize in a matrix of quartz, and can only be successfully extricated by the very greatest care and industry. There have been only some three or four of these more prominent veins opened in the above quarries within the space of some thirty years. Mr. B. has found some seventy different varieties of minerals during his researches.

Mr. F. W. Putnam called the attention of the meeting to the late discovery of a most singular animal in the lithographic stone of Solenhofen, and gave the different views that are entertained in regard to it. This fossil is singular in being a combination of bird and reptile, inasmuch as it is provided with feathers like a bird, while many of its other characteristics are reptilian. The fact of this animal's being provided with wings and with hind extremities, having but three toes and furthermore belonging to the same age as the so called "Bird tracks" of the Connecticut valley and other localities, supports the theory advanced by Professor Agassiz some time ago, that the "bird tracks" were not made by birds but by reptiles which were bird-like in their characters. Professor Wagner has given to this strange animal the name of *Griphosaurus*, from the Greek word meaning "*enigma*," and "*saurus*," referring it to the order SAURIA in the class of REPTILES.

After some interesting remarks of a general character,—
Adjourned.

Monday, February 9, 1863.

Meeting this evening, A. C. Goodell, Jr., Vice President, in the chair.

Records of preceding meeting read.

Letters were read from Maine Historical Society; C. M. Tracy of Lynn; A. Huntington; F. W. Putnam; H. G. Somerby of Boston.

Donations were announced from the following sources:

To the Library—from W. D. Pickman; James Upton; J. L. Sibley of Cambridge; Mrs. E. A. Putnam; A. Crosby; S. H. Scudder of Boston; Mrs. B. Wheatland; Mrs. L. P. Johnson; H. P. Filer, of Troy, N. Y.; C. W. Upham; A. E. Verrill of Cambridge; Chicago Historical Society; Wm. Mack.

To the Cabinets—from Thos. R. Tannatt, U. S. Army; W. P. Goodhue; William Wyman; George F. Chever.

F. W. Putnam occupied the hour of the meeting in presenting a series of interesting and instructive remarks upon the natural history of the common cod, with some observations on the classification of Fishes. After passing a vote of thanks to Mr. Putnam for his communication, and some remarks from the Chair and others, the meeting adjourned.

Wednesday, February 25, 1863.

Meeting this afternoon at 4 o'clock, adjournment from noon; Vice President A. C. Goodell Jr., in the chair.

The chair presented the following resolutions, accompanying
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ing the same with appropriate remarks in relation to the importance of the subject therein embraced:—

Resolved, That this Society heartily approves the recommendation of His Excellency Governor Andrew, in his inaugural addresses for the years 1861 and 1862, that the Legislature provide for the “collection and publication, under the patronage of the commonwealth, of the statutes enacted between the time of the union of the colonies of Plymouth and Massachusetts Bay, under the charter of William and Mary, in 1691, and that of the adoption of the Constitution in 1780;” and that this Society coincides with His Excellency in the opinion that these statutes “are of inestimable value, on account of their historical interest, their usefulness in throwing light upon subsequent legislation and the assistance which they afford in the determination of many important questions, mooted by the courts,” and also in his representations of the extreme scarcity of copies of these early law-books.

Voted, therefore, that the members of this Society are hereby requested to join in any proper measure for the purpose of urging this important subject upon the attention of the Legislature, that they may make the reasonable appropriation required for the publication of said laws.

After remarks from several members the resolutions were unanimously adopted. Adjourned.

Monday, March 9, 1863.

Meeting this evening, the President in the chair.

Records of preceding meeting read.

Letters were read from Massachusetts Historical Society; S. B. Woolworth Secretary of the Regents of the University,

N. Y. ; F. W. Putnam ; A. Huntington ; A. E. Verrill of Norway, Me. ; W. C. H. Waddell, Secretary of American Geographical and Statistical Society, N. Y.

Donations were announced from the following sources :—

To the Library—From Rev. Ray Palmer of Albany, N. Y. ; Chicago Historical Society ; W. P. Upham ; Trustees of New York State Library ; James S. Bryant of Hartford, Conn. ; Canadian Institute of Toronto ; Philadelphia Academy of Natural Science ; Miss A. M. Hemmenway of Ludlow, Vt. ; C. B. Richardson of New York ; George R. Curwen ; J. Linton Waters of Chicago, Ill. ; Boston Society of Natural History ; C. W. Upham.

To the Cabinets—From Capt. Geo. W. Gardner, 24th Reg't Massachusetts Volunteers ; Estate of B. Pickman ; O. W. H. Upham ; Miss Anna Porter ; X. H. Shaw ; James W. Thompson of Jamaica Plain ; George A. Perkins ; Lincoln R. Stone, Surgeon 55th Mass. Vols.

Mr. W. P. Upham, read a report up on six orderly books and a letter book, formerly belonging to Gen. John Glover of Marblehead, recently presented to the Essex Institute, by Hon. Robert Hooper of Boston—with the exception of one volume of the Orderly Books, which was in the possession of W. R. L. Ward, Esq., of New York, and forwarded by him a donation to the Library.

The following is a brief abstract of the report :—

These books are in manuscript, the Letter Book, containing copies of letters written by Glover, and the Orderly Books containing the General Orders issued each day from Headquarters during the following periods of the Revolution: from June 29th 1775 to July 26th, 1776, from October 19th

to November 24th, 1776; from June 28th to October 14th 1778; from March 6th to July 28th, 1779; and from August 3d to November 26th, 1781.

Orderly Books of the Revolution are very rare, and it is doubtful whether there exists in the country another series so complete and well preserved as this. Such books were at the time considered of no value, except for a temporary purpose, and the many accidents and irregularities of camp life caused them in most cases to be poorly kept and soon lost. For the student of American History, nothing could afford so interesting, and at the same time so reliable a source of information.

These books were kept in the 21st Provincial, afterwards the 14th Continental Regiment. This regiment was commanded by Col. John Glover, from the commencement of the Revolution till the 21st of February, 1777, when he was made Brigadier General. From that time till the close of the war, it constituted part of General Glover's Brigade. A sketch of his life, therefore, will serve as a proper accompaniment and illustration of these Orderly Books.

General John Glover was born in Salem, Mass., Nov. 5th, 1732, of a wealthy family that had been established in Salem from its earliest settlement. He removed to Marblehead at an early age, and was there engaged in mercantile pursuits till the outbreak of the Revolution. He then took command of the regiment raised in Marblehead, and on the 15th of June, 1775, marched with them to Cambridge. There he and his regiment had an important share in that series of manoeuvres which resulted in the evacuation of Boston by the British.

From the latter part of the year till July 20th, 1776, he was stationed at Beverly to superintend the equipment of the armed vessels that did such service at that time. Under his care were fitted out the expeditions of Selman, Brough-

ton, Manly and Mugford, and their crews was taken from his regiment, then known as the Marine Regiment.

Glover superintended the transportation of the troops and stores in the evacuation of Long Island, August 29th, 1776, and also the removal of the sick and wounded from New York City to the Jersey shore, on the 14th of September. Here his regiment did service such as none but the men of Marblehead would have had the skill and endurance to perform.

On the 4th of September, he was placed in command of General Clinton's Brigade. On the 18th of October, Glover with his brigade resisted the first landing of the British on the mainland at Frog's Neck, near New York Island. For their conduct on this occasion, they were publicly thanked by Gen. Lee and General Washington.

At the crossing of the Delaware on the night of Dec. 25th, 1776, the Marblehead Regiment again distinguished itself by its heroic daring and enterprise, in managing the boats by which Washington's little army was carried over that broad and rapid river filled with floating ice, to achieve the glorious victory at Trenton.

Soon after this, Glover returned home to Marblehead, and on the 21st of February, 1777, he was appointed Brigadier General by Congress. At first he declined; but afterwards at the urgent request of Washington, accepted the appointment. He was stationed on the Hudson till July 23d when he joined General Schuyler. He was in the battles of Bemis Heights on the 19th of September, and the 7th of October, and by his bravery and prudence contributed much to the defeat and final surrender of Burgoyne. He was chosen to conduct the captured army, 5,791 in number, through the country to Boston. The following winter he was at Valley Forge, and on the 28th of June, 1778, took

command on the Hudson, where he had charge of the completion of the forts. In August, he was under General Sullivan, on Rhode Island, and afterwards till July 6th, 1779, commanded at Providence, R. I. June 20th, 1780, he was ordered to Springfield, Mass., to superintend the forwarding of the Massachusetts Militia. The next year he again joined the Army in New York, and remained with it till the surrender of Cornwallis; October 19th, 1781. He was a member of the Court which tried Major Andre. After the war closed he returned to Marblehead, and again became engaged in the fishing trade. He died January 30th, 1797.

Throughout his eventful life he was distinguished for those virtues which most adorn the character of the citizen or the soldier, honest and generous in his dealings with others, a firm patriot, brave, yet modest, a skillful and active commander, and the ever esteemed and honored friend of Washington.

After the reading of the same, remarks were offered by the Chair, and Messrs. C. C. Beaman and A. C. Goodell—and a vote of thanks was passed to Mr. Upham for his very interesting and valuable communication, with a request that a copy be furnished for publication in the Historical Collections. This Report with an abstract of the Orderly Books, is printed in the Historical Collections of the Institute. See vol. v. pages 49—72 and 97—130.

Mr. George D. Phippen read a letter from Hon. Solomon Lincoln, of Hingham, tendering to the Institute a manuscript volume containing “a list of American seamen committed to the old Mill Prison, Plymouth, England, from 1777 to 1781.” A vote of thanks, upon his motion, was presented to Mr. Lincoln and others for the valuable donations announced this evening. Adjourned.

Monday, April 6, 1863.

Meeting this evening, at Creamer Hall, the President in the chair.

Records of preceding meeting read.

Donations announced from the following:—

To the Library—From Cincinnati Mercantile Library Association; C. B. Richardson of New York; Charles Davis of Beverly; Mrs. John H. Stone; George R. Rowe, City Clerk of Lawrence; Vermont Historical Society; John Ward Dean of Boston; L. A. H. Letour of Montreal, C. E.; John A. Innis; Zoologische Gesellschaften, Frankfort, A.M.; C. W. Palfrey; N. J. Lord; Young Men's Association of Buffalo.

To the Cabinets—From John C. Lee; John Robinson; Edward O. Brown; Charles Babbidge, Chaplain 26th Reg't Mass. Volunteers; Wm. A. Williams.

Letters were read from Pennsylvania Historical Society; Corporation of Harvard College; Maine Historical Society; Connecticut Historical Society; L. Agassiz; S. Tenney; Smithsonian Institution; American Geographical and Statistical Society; W. G. Binney of Burlington, N. J.; F. W. Putnam; American Philosophical Society; F. S. Pease of Albany, N. Y.; N. Paine of Worcester.

Rev. Joseph B. Felt read a valuable and interesting communication on "John Endicott, the first Governor," (see Historical Collections of Institute, vol v, page 73.)

Remarks were then offered by Messrs. S. M. Worcester; A. C. Goodell Jr.; G. D. Phippen; C. C. Beaman and the Chair.

On motion of A. C. Goodell,

Voted, That the thanks of the Institute be presented to Rev. Dr. Felt for the communication read this evening, and that a copy be placed at the disposal of the Publication Committee. Adjourned.

Wednesday, May 13, 1863.

Annual Meeting this day at 3 P.M., at their rooms, Plummer Hall, Vice President S. P. Fowler in the Chair.

Records of preceding meeting read.

Donations were announced from the following :

To the Library—from James A. Gillis ; N. C. Robbins ; B. W. Stone ; Miss P. W. Hazeltine of Lynn ; Philadelphia Academy of Natural Science ; Canadian Institute at Toronto, C.W. ; James S. Bryant of Hartford, Conn. ; Charles Ward ; Asahel Huntington ; Thomas H. Lefavour ; John L. Sibley of Cambridge ; City of Boston ; Mrs. James Kimball ; Frederick Kidder of Boston ; Jeremiah Colburn of Boston ; Massachusetts Historical Society ; C. C. Sewall.

To the Cabinets—from William Goodhue ; S. Barden of Rockport ; J. A. Smith ; J. P. Cooke Jr. of Cambridge ; N. C. Robbins ; Caleb Cooke ; B. F. Browne.

Letters were read from Pennsylvania Historical Society ; Massachusetts Historical Society ; Trustees Public Library, Boston ; Smithsonian Institution ; Trustees of Public Library, Newburyport ; J. Henry Stickney of Baltimore, Md. ; J. Pearson of Schenectady N.Y. ; S. Lincoln of Boston ; L. Saltonstall of Boston ; W. A. Lander of Danvers ; Jacob Batchelder of Lynn ; Ward Poole of South Danvers ; G. H. Lodge of Swampscott ; D. E. Safford of Hamilton ; W. B. Rogers of Boston ; J. P. Cooke Jr. of Cambridge ; C.

M. Tracy of Lynn ; C. C. Binney of Burlington N.J.; S. H. Scudder of Boston ; R. Green & Co. of Providence, R.I.; F. H. Lee.

Report of the Secretary was read and accepted.

Report of the Treasurer read, and referred to the Finance Committee.

F. W. Putnam read a report on the condition of the Zoological collections.

From these Reports the following may be specified :

Six members have been stricken from the roll by death ; these brief notices, a deserving tribute to their memory, are appended.

1. GEORGE ANDREWS, son of John H. and Nancy (Page) Andrews, born in this city March 11, 1824—was prepared for the University at the Latin School, then under the charge of Oliver Carlton, graduated at Harvard College in 1847—studied the profession of the law in the office of A. Huntington of Salem, from July 14, 1847 to Sept. 25 1848, and from July 18, 1849 to June 19, 1850—in the interval at the Law School in Cambridge—was admitted a member of the Essex Bar June 20, 1850. He always took a deep interest in all educational movements and was for several years an active and useful member of the School Committee. He was an Associate Justice of the Salem Police Court ; a Representative of the Massachusetts Legislature from Salem in 1859. His death occurred August 26, 1862. The city thereby has lost a conscientious, faithful, and upright man and our literary, scientific and educational institutions, a kind and sympathizing friend.

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2. **NATHANIEL AUGUSTUS KIMBALL**, son of Nathaniel and Sarah (Knight) Kimball, was born at Plaistow, N. H., May 5, 1822; and was educated at the academies in Atkinson and Plaistow, N. H.. In early life he came to this city, engaged in mercantile pursuits, and for several years in connection with his brother was an enterprising and active merchant. He died at Salem, August 27, 1862.

3. **CHARLES F. WILLIAMS, JR.**, son of Charles F. and Sophia (Silver) Williams, was born in this city, March 25, 1842, and was educated at the public schools, where he always sustained a character for good scholarship and conduct. After leaving school, he went as clerk in an extensive Dry Goods store, and was there quietly pursuing this occupation when the outbreak of the rebellion took place. At the first call for volunteers in April 1861, he went as corporal in the Salem Light Infantry, Co. A., 8th Reg't Mass. Vols., and performed three months of efficient service. He then resumed his former occupation until he received the appointment of Lieutenant in Co. F., (Capt. S. C. Oliver,) 35th Reg't Mass Vols., and again entered the service of his country; after an absence of only a few weeks he fell wounded in the gallant discharge of his duties in the battle of Antietam, on Wednesday, Sept. 17, 1862, and died at Middletown, Md., on the 23d of that month, in consequence of his wounds. He was one of our most estimable and respected young men, and his loss will be deeply felt and deplored by a large circle of friends.

4. **JOHN HUBBARD STONE**, son of John and Catharine (Dodge) Stone, was born at Salem, Sept. 9, 1809, married August 31, 1837, Elizabeth Flint, daughter of Addison and Sally (Upton) Flint of Reading, (see Flint's Genealogy, page 97.) He was educated to a mercantile life—had been for several years Clerk in the Adjutant General's office in

in this State; and also received the appointment of an Inspector in the Salem Custom House during the administration of President Pierce. For several years past he has devoted his attention to Genealogical investigations, and printed in connection with John Flint, "a Genealogical Register of the descendants of Thomas Flint of Salem," in one volume, octavo. He also contributed freely to various articles in the Historical Collections of the Institute. He was elected Librarian in May, 1856, and has been successively elected to that office at each annual meeting, and was engaged in the preparation of a catalogue of the Library, when sickness and death prevented him from the completion of this undertaking. He always took a very active and deep interest in all the departments of the Institute; and we have thereby lost a valued and good friend. He died of Erysipelas, Nov. 17, 1862.

5. CHARLES FISKE PUTNAM, son of Ebenezer and Betsey (Fiske) Putnam, was born at Salem Oct. 19, 1802. He married Sarah daughter of Daniel and Deborah (Silsbee) Sage, she survives. He was educated to the occupation of a druggist, and for many years kept an extensive druggist's establishment in this city. For the last twenty or twenty five years he has devoted his attention to the cultivation of fruit, has been a very successful horticulturist, and has contributed largely to all our Horticultural Exhibitions, the specimens shown were always very fine and attracted a merited degree of attention. He died at his residence in this city after a long and lingering illness, Dec. 31, 1862.

6. WILLIAM BROWN, son of David and Hannah (Preston) Brown, was born at Salem, Dec. 22, 1802. He served the apprenticeship of printer in the office of the Salem Register, and was for many years connected with the press both in the Gazette and the Register offices. He was appoint-

ed Naval Officer at this port, under General Taylor's administration in 1849—and at a later period a Clerk in the Adjutant General's office of this State. Since the commencement of the Rebellion, the duties in the Adjutant General's department have greatly increased and the office of Assistant General was thereby created—and Mr. B. received the appointment. The labor assigned to him he performed with great fidelity and faithfulness, and the closeness of this application probably hastened his departure. His genial and social disposition won for him a host of friends; though not an active member, he always took great interest in the success of this Institution. He married June 26, 1825, Rebecca Upton Wright. He died in Boston on Monday Feb. 16, 1863, aged 60—to which city he removed a few years since.

MEETINGS.—Four Field Meetings were held during the past season, at the Ship Rock in South Danvers, Rockport, Hamilton Ponds, and Rowley. They were all fully attended, especially the meeting at Rockport, which was the largest of any of these meetings held under the auspices of the Institute. Eight Evening meetings during the winter months—and ordinary meetings for the election of members as usual.

LECTURES.—A course of six lectures on Scientific subjects have been delivered during the present Spring, viz :

1. Prof. L. Agassiz on Monday March 16—"Plan in Creation."
2. S. Tenney, on Monday March 23, on "Antiquity of the Earth."
3. C. M. Tracy, on Monday March 30, on "Weeds."
4. Prof. J. P. Cooke, Jr.—on Monday April 13, on "Analysis of the Sun," with experiments.

5. F. W. Putnam, on Monday April 20, on "Fishes."

6. Prof. W. B. Rogers, on Wednesday May 13, on "Application of Science to the Arts."

These lectures were well attended and a desire has been expressed that other courses should be hereafter arranged.

PUBLICATIONS.—One volume of the Historical Collections; and the third part of vol. ii. of the Proceedings, have been printed, which concludes that volume.

DEPARTMENT OF NATURAL HISTORY, continues to receive a merited degree of attention. Forty-one donations have been made in *Zoology*, as follows:—Mammals, 5, Birds, 7, Reptiles 8, Fishes 4, Mollusks 6, Articulates 7, Radiates 2, Fossils 2, several of these donations comprise a large number of specimens and species, many of which were new to the Cabinets.

During the year much has been done in the arrangement of the specimens; the Birds have been catalogued and numbered, and the North American species identified and labelled—those indigenous to the county of Essex have been brought together and placed in separate cases. A visitor to the rooms can now form a very good idea of the number and appearance of the birds of this County, for we have representatives of nearly all the species found within its limits. It is proposed to adopt this plan in the arrangement of the other classes and endeavor to procure specimens so that the Fauna of the County shall be fully represented in our collections.

The Mammals have been catalogued and to a certain extent identified and labelled. That of Reptiles, Fishes and Insects have been commenced. The Radiates, by the assistance of Messrs. A. Agassiz and A. E. Verrill have been fully identified, catalogued and labelled.

The interchange of specimens with the Museum of Comparative Zoology has been continued with equal benefit to both Institutions.

A full series of our Foreign Serpents has been sent to Prof. Jan of Milan for identification. These he has examined and returned with the exception of two or three specimens, types of new or imperfectly known species which he has retained for a short time for the purpose of having them figured in his forthcoming work on Serpents.

One of our members, Caleb Cooke, for three years a resident at Zanzibar, has contributed many interesting botanical specimens collected at that place. A curious growth of wood found among some slabs at one of the wharves—from Maine, by Benjamin Felt.

The most prominent of the contributions to the collections of Mineralogy are specimens of Green Feldspar (crystalized) and Quartz in variety from Rockport; presented by Rev. Stillman Barden. A plan has been adopted in the arrangement of the specimens in this part of the collections, similar to that of the Birds, in placing those found in Essex County in separate cases.

THE HISTORICAL DEPARTMENT has been enriched by portraits of Capt. John Carnes one of the early navigators to the East Indies from Salem, and, who is said to have command of the first vessel to the coast of Sumatra,—presented by W. P. Goodhue; also of Col. Benj. Pickman, the second President of the Essex Historical Society, by the family;—a view of the Court House in Salem, removed in 1839, painted upon an old fire-board—from C. W. Upham; a photograph of sybil Swinnerton, from Miss Ann Porter; also of Washington, from David Nichols.

From E. C. Brown, Bow and Arrows, from Fejee Isles.

H. F. Shepard, Coins. J. W. Thornton of Boston, W. L. Welch, Henry Merritt, Geo. W. Gardner, Reuben W. Ropes of Brooklyn, N.Y., Thomas K. Tannatt, John Robinson, War Relics. Mrs. I. Ward, specimen of thread &c., manufactured from the fibre of the common Milkweed, by Miss Margaret Gerrish, some thirty years since. L. Peirson Ward, a Mirror, from Japan. Rufus Wendell, a piece of the Charter Oak, at Hartford. John S. Annable of Hamilton, Indian Axe, Gouge and Chisel. Joseph Hammond, a copper Kettle, from Japan.

Among the manuscripts donated may be mentioned the Orderly Books of the late General Glover, from Robert Hooper and W. R. L. Ward. Book of Births kept by the late Dr. Richard Hazeltine of Lynn, from his daughter Miss Phebe W. Hazeltine.

THE LIBRARY continues to receive many valuable additions. Number of vols. received :

Folios, principally Newspapers, 47 ; Quartos, 8	55
Octavos, and lesser fold	421
	— 476
Serials, 595 ; Pamphlets, 364	959
	—
	1435

The above have been contributed by 114 different Institutions and Individuals. The exchanges with other societies continue to increase, and we trust that ere long, a regular systematic exchange will be established with the leading Institutions of this country.

HORTICULTURE. During the past season three monthly Exhibitions of Fruit, Flowers and Vegetables were held ; the first on Friday, June 27 ; second on Friday, July 25 ; third on Friday August 22. The Annual display took place on Wednesday, Thursday and Friday, September 22, 23 and

24, and was one of the best ever exhibited. There has been, in some former years, a larger number of varieties but never more splendid fruit or such fine vegetables. The most experienced and skilful connoisseurs and practical horticulturists selected the following list of fourteen Pears from the exhibition, which have in their growth this year surpassed that of all former seasons, viz:—Monsieur le Cure or Vicar of Winkfield; Beurre Diel; Marie Louse; Belle of Flanders or Flemish Beauty; Belle Lucrative or Fondante d'Automne; Paradise of Autumn; Louise Bonne de Jersey; Beurre d'Amaulis; Easter Beurre; Glout Morceau; Doyenne Boussock; Bartlett; Beurre Bosc; Winter Nelis.

The crops were very abundant, and all kinds of fruit plenty. Seldom do we have our markets so well supplied with choice kinds of Fruit and at so reasonable prices.

THE TREASURER presents the following statement of the Financial condition for the year ending May 1863:—

GENERAL ACCOUNT.

Debits.

Athenæum, Rent, one-half of Fuel, Attendance, &c.	\$460 37
Printing, \$7 62; Gas Light Co., \$7 46,	15 08
Expresses and Postages,	18 88
Printing Collections and Proceedings,	713 67
Expenses of Lectures and Meetings,	103 95
Historical Account,	9 00
Natural History and Horticulture account,	31 52
Sundries,	22 83
Treasurer balance due on previous account,	18 92
Balance on hand,	39 36
	<hr/>
	\$1,433 58

Credits.

Dividends Webster Bank,	85 00
Assessments,	590 00
Proceeds of sale of Publications,	458 98
Proceeds of Lectures,	298 05
Sundries,	56 55
	<hr/>
	\$1,483 58

HISTORICAL ACCOUNT.

Debits.

Binding, 70 47 ; Books for Library, 9 33	79 80
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Credits.

Dividends Naumkeag Bank,	12 00
Coupons Mich. Central R. R. Bonds,	58 80
General Fund,	9 00
	<hr/>
	\$79 80

NATURAL HISTORY AND HORTICULTURE ACCOUNT.

Debits.

Preservatives, &c., 14 88 ; Books, 12 00	26 88
Horticultural Exhibitions,	124 90
	<hr/>
	\$151 78

Credits.

Dividends Portsmouth, Saco and Portland R. R.	12 00
Dividends Lowell Bleachery,	40 00
Horticultural Exhibitions,	66 76
General Fund, 31 52 ; Sundries, 1 50	33 02
	<hr/>
	\$151 78

The following were elected officers for the year ensuing and until others shall be chosen in their stead :

President.—A. Huntington.

Vice Presidents.—Of History, Abner C. Goodell, Jr. ; of Horticulture, James Upton ; of Natural History, S. P. Fowler.

Secretary and Treasurer.—H. Wheatland.

Librarian.—N. J. Holden.

Cabinet Keeper.—R. H. Wheatland.

Finance Committee.—John C. Lee, R. S. Rogers, H. M. Brooks, G. D. Phippen, J. Chamberlain.

Library Committee.—J. G. Waters, D. Roberts, A. Crosby, H. J. Cross.

Publication Committee.—A. C. Goodell, Jr. ; H. Wheatland ; C. M. Tracy ; Ira. J. Patch ; G. D. Phippen ; W. P. Upham.

Curators of Natural History.—Botany, C. M. Tracy ; Ornithology, Thomas M. Pond ; Articulata, James H. Emerton ; Radiata, C. Cooke ; Geology, H. F. Shepard ; Mammalogy and Ichthyology, F. W. Putnam ; Herpetology, R. H. Wheatland ; Comparative Anatomy, H. Wheatland ; Mollusca and Paleontology, H. F. King ; Mineralogy, Charles H. Higbee.

Curators of History.—Ethnology, W. S. Messervy, M. A. Stickney, John Robinson, C. F. Nichols ; Manuscripts, W. P. Upham, G. L. Streeter, S. B. Buttrick, Henry M. Brooks ; Fine Arts, Francis Peabody, Joseph G. Waters.

Curators of Horticulture.—Fruits and Vegetables, James Upton, John M. Ives, J. F. Allen, J. S. Cabot, R. S. Rogers, G. B. Loring, John Bertram, S. A. Merrill ;

Flowers, Francis Putnam, W. Mack, C. H. Norris, G. D. Glover, B. A. West.

Voted, That a Committee be appointed to arrange for the Evening Meetings the ensuing winter, also to consider the expediency of having a course of Lectures on some subjects appertaining to the objects of the Institute—and if in the affirmative, to make all necessary arrangements in relation thereto. Messrs A. C. Goodell Jr., Francis Peabody, G. D. Phippen, E. B. Willson, James Kimball, F. W. Putnam, and George Perkins, were appointed on said Committee.

Voted, That a Committee be appointed to arrange for Field Meetings the ensuing season if expedient. Messrs. A. W. Dodge of Hamilton, C. M. Tracy of Lynn, S. P. Fowler of Danvers, S. Barden of Rockport, C. C. Beaman, J. M. Ives, and C. H. Norris of Salem, were appointed on said Committee.

Voted, That the Curators of Horticulture be authorized to hold such Exhibitions of Fruits, Flowers and Vegetables during the ensuing season as they may deem expedient.

Voted, That F. W. Putnam be requested to act as an assistant to the Cabinet Keeper for such time as his services may be required. Adjourned.

Wednesday, June 10, 1863.

FIELD MEETING AT SWAMPSCOTT.—The day was fine and very favorable for out-door rambles. Some went to the beaches and collected specimens of the Mollusca, &c., and others to the woods near by gathering a variety of plants.

The afternoon session was held at the Town Hall and was called to order at 3 P.M., by A. C. Goodell Jr., one of the Vice Presidents, who opened the meeting with an appro-

priate allusion to the ancient dwellers of Swampscott, whose names have become a part of the history of the town, also of the events which occurred in the early settlement.

Records of the preceding meeting read.

Donations received since the Annual meeting of the 18th ult. were announced :

To the Library—from Mrs. Lucy P. Johnson ; Samuel Johnson Jr. ; Saint Louis Academy of Science ; Philadelphia Academy of Natural Science ; H. J. Hastings of Albany N.Y. ; New Jersey Historical Society ; N. Paine of Worcester ; Charles Stephens of Beverly ; William Mack ; Charles F. Nichols ; Joseph Willard of Boston ; H. I. Bowditch of Boston ; California Academy of Natural Science ; C. B. Richardson of New York.

To the Cabinets—from C. F. Nichols ; T. M. Pond ; C. H. Higbee ; John Robinson ; John Prescott of Grafton N.H. ; George Killham ; Museum of Comparative Zoology at Cambridge ; S. Jillson of Feltonville ; Geo. G. Creamer.

Letters were read from Maine Historical Society ; Trustees of Boston Public Library ; S. P. Fowler of Danvers ; S. A. Green, Surgeon 24th Reg. Mass Vols. ; Nath'l Paine of Worcester ; S. Barden of Rockport ; Allen W. Dodge of Hamilton ; Charles Dean of Boston ; Joseph Willard of Boston.

PROF. L. AGASSIZ of Cambridge, being called up by a graceful allusion made by the Chair, spoke of the boundlessness of investigation, and the importance of studying common things. Nothing, he said, is so instructive as the continued study of those things we know most of. The more we examine Nature, the more she suggests to us. He spoke of his recent

experiments, made with a view of ascertaining the age of animals and especially of his study of the habits of the common marine snail, (*Natica Heros*), found upon our beaches. He desired to ascertain, if he could, its rate of growth, and for that purpose had gathered about a thousand specimens of various sizes, within a few days. These he had assorted, and found to be easily divided into groups, each group being of a certain definite size, and there being none of intermediate growth. He had previously ascertained that snails always spawned at the same time, once a year, and that the process continued but a few days. He therefore knew that each of his groups of snails—those of the same size—were of the same age, having commenced growing at the same time; and having grown under precisely the same circumstances, were therefore so much alike. He thus ascertained the various ages of the *Naticas* found together upon one beach from those of one or two years up to those of twenty-five or thirty years—the latter being the age of the largest snails usually found upon the beach. He also noticed rings or transverse lines upon the snail shells, more distinctly marked than the ordinary lines of growth, the number of which indicated very nearly their age; for these lines coincided with the ordinal number of the different set of specimens arranged according to their size. He had thus, he thought, ascertained the rate of growth of these shells. A comparison with other families however, shows a widely different result. Among the larger land-snails, (*Helices*), some species may reach in one year the dimensions which a *Natica* takes from ten to fifteen years to attain. Again, some of our *Unios*, such as *U. cylindricus*, require at least fifteen years to acquire their full size, while our *Pinnas* reach to their full dimensions in seven or eight years. It is by a similar process, he said, that we

are to ascertain the age of the earth. An examination of the several deposits that form the crust of the earth shows that they are composed of certain vegetable and animal productions, and having ascertained the rate of growth of each, it may become a simple sum in addition to tell how old the earth is. An examination of the delta of the Mississippi disclosed eleven different deposits of trees, each of which were from six to eight hundred years old, and each must have grown on the same spot; and yet they only composed a depth of not many feet. Some birds and animals have a very rapid growth, while others are very slow. A speckled turtle, for instance, has scarcely reached half its growth in eleven years. Prof. Agassiz dwelt at length upon the importance and value attached to the study of common things, The more we know of Nature, the more suggestive she is. Like an old friend, she opens her heart to us freely, if we seek a thorough acquaintance with her.

Prof. A. CROSBY of Salem, inquired whether the same rule of classification spoken of in the case of snails would apply to vertebrate animals.

Prof. AGASSIZ said he had not fully investigated that point. He had just set some children at work to catch all the sculpins they could, in order that he might make the test. He was of the opinion, however, that vertebrate animals of the same kind born at precisely the same period, and living under precisely the same circumstances, would all grow nearly to the same dimensions during the same time. The difference in the size of human beings is in a great measure owing to the different circumstances under which they are born and live. He spoke of the great

difficulties attending an examination of the early development of the Natica.

Mr. F. W. PUTNAM of Salem, said he had found the rule spoken of to apply to toads, and Mr. A. E. VERRILL of Cambridge, spoke of his investigations in regard to a species of the salamander.

Prof. WILLIAM RUSSELL of Andover, being called upon, said his investigations in science were in a different direction—being the application of æsthetics to the cultivation of the voice. Upon repeated urging, he came upon the platform and delivered a beautiful poetic apostrophe to the Supreme Being, having first, in imagination, taken his hearers to the grand old woods.

Mr. J. M. IVES of Salem, spoke of the habits of that singular and interesting bird, the republican or cliff swallow, whose nests are found so often under the eaves of buildings. He mentioned instances of almost human display of reason exhibited by birds in the care of their young.

Prof. RUSSELL related anecdotes of birds, and the curious nests which they sometimes build, showing that they do deviate from their established habits, under some circumstances, notwithstanding the assertion of certain naturalists that they do not—one of a golden robin which had appropriated a child's stocking and ingeniously constructed it into a nest, and another of a bird which appropriated a lady's white collar, worth five dollars, for the same purpose. He thought they were governed by instinct more than by fixed habits.

Allusion having been made, in some of these anecdotes, to

instinct and reason, Gen. H. K. OLIVER of Salem, said he had often wondered where instinct left off and reason began ; and related some facts connected with the Natural History of the honey bee, whose habits he had closely watched for sixteen years in hives, in his own garden. He also related some interesting details recorded by English and French Apiarians, showing a manifest deviation from the promptings of mere instinct. In one case, when a snail had obtruded his presence into a hive, the bees had, with a gummy substance covered over the orifice, and thus sealed the animal within his shell. When a common slug made a similar intrusion, he being a soft animal, was sealed up by being covered over completely. The question occurred to him why should not the bees, in the first instance, have covered shell and all ? How should they know that that course would not be necessary to protect themselves from the disagreeable odor of a dead animal ? Gen. O. likewise told a curious story (and a true one,) which was related to him by the late Rev. Dr. Flint of Salem, who was a personal witness of the proceeding, and vouched for its correctness. It is a well known fact that in early fall, the working bees clear all the drones entirely out of the hive, drag them away and kill them. They more frequently worry them to death, than kill them by stinging. Dr. Flint, on an occasion of this "slaughter of the innocents," in his own hives, one day sat down by a hive to watch the process, and assist, perhaps, in this big job of extermination by despatching the drones as they were brought out. This he did with a spear, or needle inserted in the end of a stick. As the bees came struggling out with a drone, the Doctor would despatch the victim at once. Having followed this up some time he waited to observe what effect his proceeding would have ; and he found that the bees, instead of proceeding with their work of worrying

the drone to death, as they did before he assisted, *simply remained holding on to the drone and waited patiently for him to finish the operation*—travelling back for another victim when he had despatched the last. Gen. Oliver said this story seemed almost incredible, and he should not have believed it himself had not Dr. Flint assured him that it was a positive truth which came under his own personal observation. Was there not here a manifest reasoning?

Prof. AGASSIZ said that, in reference to the relation of instinct to reason, he could simply give his own opinion, which was, that there is no essential difference between the two—his idea being that, while there may be what is called instinctive action as distinguished from that resulting from the deliberate exercise of reason, both were actuated by the same influences. The difference in the influences which actuate the lower animals and those which govern man, he considered difference in degree rather than differences of kind—the one having in an undeveloped condition what the other has in a perfect state.

Mr A. E. VERRILL spoke of the changes of the habits of sea-gulls in the Bay of Fundy, who, from having been often robbed of their eggs, have ceased laying them upon the rocks and sand, and taken to the highest trees. In cases where the robbing has been stopped by legal enactment, the gulls have returned to lay their eggs upon the rocks.

Messrs. IVES and PUTNAM alluded to the practice of the yellow bird who resort to ingenious methods to protect themselves from the encroachments of the cow hunting.

HENRY WHEATLAND alluded to the recent decease of Dr.
ESSEX INST. PROCEED. VOL. iii. 33.

George Osgood of Danvers which took place at his late residence on the 26th of May, 1863, after a short illness. His great love for botanical studies, which were commenced under the auspices of the venerable Rev. Dr. Cutler of Hamilton, and his great interest in these Field Meetings, entitle him to some notice—therefore

Voted, That Messrs. S. P. Fowler and G. D. Phippen be a Committee to prepare a memorial of the late Dr. G. Osgood of Danvers, also, a series of resolutions to be transmitted to the family of the deceased.

Voted, That the thanks of the Institute be presented to the Selectmen of Swampscott for the use of this Hall, also to Prof. Agassiz and other gentlemen who have favored the meeting with instructive and interesting remarks. Adj.

Thursday, June 25, 1863.

FIELD MEETING, this day, at Amesbury, one of the loveliest of June days. The people, and more especially the Agricultural and Horticultural Society of Amesbury and Salisbury were very hospitable, furnishing vehicles and skillful and intelligent guides to conduct the visitors to all the numerous points of interest. Some went in search of the antique and visited several sites memorable not only in the annals of these towns, but of the county, state and country;—others fond of natural scenery or some of the branches of Natural History went to Kimball's Pond, and were there rewarded in finding several rare plants and insects, specimens of which were collected for the Cabinets of the Society. A pleasant drive to several of the other villages of Amesbury, and along the banks of the beautiful Merrimac closed the forenoon's excursion.

The afternoon session was held in the First Congregational Church, at 2 30 P.M. S. P. Fowler of Danvers, one of the Vice Presidents, in the Chair.

Records of the preceding meeting read.

Donations received since the last meeting were announced:—

To the Library—from Henry Wilson, U. S. Senator ; Chicago Historical Society ; Redwood Library and Athenæum at Newport, R.I.; L. A. H. Latour, Montreal, C.E.; American Antiquarian Society ; Thomas Stimpson of South Danvers ; G. F. Read ; Mary E. Jocelyn ; Albany Institute ; G. C. Chase ; Thomas H. Johnson ; New York Mercantile Library Association ; E. M. Stone of Providence, R.I.

To the Cabinets—from R. S. Rogers ; J. H. Emerton ; C. H. Higbee ; John Robinson ; W. Palmer ; H. M. Brooks ; Thomas M. Pond ; George Kilham of Boxford ; N. Vickery of Lynn.

Letters were read from Joel Munsell of Albany ; John G. Whittier of Amesbury ; C. M. Tracy of Lynn ; A. E. Ver-
rill of Cambridge ; C. W. Felt ; Pennsylvania Historical Society.

H. WHEATLAND of Salem, gave a brief history of the Institute, and the origin of these Field Meetings ; the first having been held at Danvers in June 1849.

G. D. PHIPPEN of Salem described several of the thirty-seven species of plants collected by the party, spoke of the adaptation of some of them for cultivation in our gardens, and suggested the importance of devoting more attention to this branch of horticulture.

Hon. ALLEN W. DODGE of Hamilton, read a list of the plants and shrubs found in Amesbury and Salisbury, presented by Mr. Whittier. He also said, the field meetings of the Institute possessed one interesting feature, in the fact, that every trade and profession was represented, thus showing that whatever else might principally engage their attention, yet they found time to devote to the study of nature, and it was really astonishing how much may be learned by persistent application. As an illustration of this he referred to his own experience in a particular department of agriculture—the nursery enterprise—in which he flattered himself that he had been the instrument of good to the people of the county, in many parts of which he could recognize fruit trees that had passed through his hands. He hoped that, in this regard, the world was better than when he found it. He then paid a deserved tribute to the excellent Horticultural Society in Amesbury. Mr. Dodge had noticed with interest and concern that, in our vicinity, several kinds of fruit seem to be now hardly worth cultivating. The Plum appears to have seceded, the Cherry is feeble, and it was a rare thing to get a Rare-Ripe. Pears were abundant and excellent last year; this year they do not promise so well. Quinces, once so popular for preserves, had been superseded by the Cranberry. It was for the interest of the farmers of the county to make the best of what they have left. Small fruits, such as Currants, Raspberries, &c., might be profitably cultivated. Gooseberries he did not consider so important. As to Strawberries, he would say that he had taken some exercise in weeding them, and that he considered them cheap at twenty-five cents a box.

Mr. J. J. H. GREGORY, of Marblehead, said a few words relative to the Strawberry culture, recommending the

system of raising them in hills instead of the common method of beds. He then took up his favorite topic of Geology and gave a description of the soil, rocks, &c., found in the town.

A. C. GOODELL, Jr. Esq. of Salem, being called on by the Chair, said he rose cheerfully, to give an account of what he had seen, in the delightful journey he had, to day, made through Old Salisbury and this, her neighboring town. And yet he could not but regret that, in the absence of the Rev. Dr. Felt who, it had been hoped, would have prepared a paper on the history of these towns to be read at this meeting—this subject could not be more fully and satisfactorily discussed than in the remarks which he proposed to offer.

He then proceeded to say that a company of nine gentlemen, accommodated in two carriages, driven by Mr. True and the Hon. Streeter Evans, composed the party of which he had the pleasure of being a member, and which started on its tour from the East Salisbury station immediately after the arrival of the train. On the way a conversation ensued as to the origin of the names of these towns; and Mr. Evans suggested that, as Salisbury contains no ponds within its limits, it may have received its name from its resemblance in this particular to Salisbury in Wilts, in England. But the speaker thought this conjecture hardly satisfactory, inasmuch as Salisbury in 1640—the date of its incorporation,—included the present town of Amesbury, which contains several ponds. He was inclined to believe that its name was changed from Colchester, its earlier name, in remembrance of the English home of some of its earliest leading inhabitants—perhaps, as some have supposed, the Rev. William Worcester, its first minister, or more likely, Christopher Batt, who was from Salisbury in England,

and who was a representative in General Court from the town of Salisbury, when the name was changed in 1640. The farm of Mr. Batt had been pointed out to-day by Mr. Evans.

Salisbury, in Wiltshire in England, sometimes called Old Sarum, is a town of great antiquity, and the etymology of its name is involved in great doubt, though Camden is inclined to trace it to *Sorbio*- or *Sorvio-dunum* which, in the ancient language of Britian, signifies a dry hill—a name which, on account of its high and barren situation, was quite appropriate in the earliest times, if we may believe the Old Latin distich which is translated thus :

“ Water’s there scarce, but chalk in plenty lies,
And those sweet notes that Philomel denies,
The harsher music of the wind supplies.”

South of Old Salisbury is the famous Salisbury Plain, memorable not only for its curious Druidic stones, known as Stonehenge, but as the scene of Hannah More’s touching story of the Shepherd of Salisbury Plain. North of Salisbury, on the river Avon—not the Avon in Warwickshire, on which is Stratford where lie the remains of Shakespeare, but another river of that name flowing southwardly into the British Channel—is Ambresbury or Amesbury, from which our town of Amesbury takes its name. The origin of this name is more certain than that of Salisbury, being traced to Ambrosius Aurelianus, a British king, who died about the year 508, and who gave name to the place, which is strictly Ambrose-bury, that is, Ambrose’s-town ; and hence the old-fashioned pronunciation of the name as *Amsbury* is, etymologically, more correct than the modern pronunciation of *Amesbury*.

Amesbury was set off from Salisbury in the year 1668.

The speaker then went on to describe the interesting localities pointed out by their intelligent guide, such as the site of the first meeting house in Salisbury, the site of the old Court House, and of the dwelling-house of the Clerk of the old Norfolk County Courts, and other places.

In the old grave yard, said the speaker, we were shown the grave of Rev. WILLIAM WORCESTER, the first minister of Salisbury, and the ancestor of Noah Worcester, the distinguished philanthropist, of Joseph E. Worcester, the eminent lexicographer, and of the late Rev. Dr. Samuel Worcester, of Salem; also the grave of his successor, the Rev. JOHN WHEELWRIGHT, who is distinguished for his persistent advocacy of the cause of Anne Hutchinson, and for the persecutions he endured therefor. Anne Hutchinson, the speaker thought, had not been fairly dealt with by historians, who have not sufficiently brought to light her exalted character, and have not done her the justice to place her at the head of the most spiritual school of New England's religious teachers. She was the precursor of the Friends; and was the first to announce the necessity of certain inward experiences which are now generally considered the essential marks of "conversion" by evangelical sects. Two Boston clergymen were her especial defenders—John Cotton and John Wheelwright. The former wavered in his adherence to the cause of Mrs. Hutchinson, who was afterwards banished from the Colony, and fled to the Dutch settlements west of New Haven, where she was murdered by the Indians. Wheelwright, however, whose wife was a sister-in-law to Mrs. Hutchinson, always defended her, was banished therefor, and founded Exeter in New Hampshire. He removed afterwards to Wells, and having been re-admitted into the Colony, was still later settled in Salisbury, and died here Nov. 15, 1679. He was the college classmate and friend of

Cromwell, and was in England some time during the Protectorate.

These graves were covered with large, flat, rough stones lying horizontally and bearing no inscription.

The Secretary had alluded to the fact that this was the first meeting of the Institute ever held in old Norfolk County; and this brought to the speaker's mind another name intimately connected with the history of that County, which comprised within its limits Hampton, Haverhill, Salisbury, Exeter, Dover and Strawberry-bank (now Portsmouth,) and which was made a separate County in 1643. The name referred to was THOMAS BRADBURY, the old Norfolk County Recorder and Clerk of the Courts. He was in this country as early as 1634, married a Mary Perkins, of Ipswich, in 1636, and afterwards removed to Salisbury, where he remained till his death, which took place in 1695. His wife, during that mental epidemic, the witchcraft delusion, which the speaker thought identical in its nature with modern spiritualism, was one of the accused; but was acquitted chiefly through the untiring exertions of her devoted husband and the earnest remonstrance of nearly every person in town, many of whom had been her neighbors for more than fifty years, and were shocked that so good a mother, wife and neighbor should be accused of so horrible a crime. She survived her husband about five years.

Bradbury was one of the leading men of the colony yet no monument marks his resting place, or that of his wife, and only a grassy hollow indicates the site of his mansion house, and no trace remains of the old Court House where he so many years officiated. His records are to be found in the Registry of Deeds at Salem. They begin in 1648 and end in 1691.

The town of Salisbury was famous, as being the place

where in 1737 assembled the General Court to confer with the Legislature of New Hampshire concerning the boundary line between the two provinces. This boundary line had long been in dispute, from the fact that the Massachusetts Patent described the northern boundary of its grant as on a line running "three miles north" of the Merrimack river, thus conflicting (through ignorance respecting the course of that river which was supposed to run due east) with the claims of other grantees. It was finally settled, in 1740, upon its present location. We were shown the house, still standing, in which, it is said, the General Court assembled. The New Hampshire Legislature sat at the same time in Hampton.

Before and during the existence of the county of Norfolk, New Hampshire had been under the dominion of Massachusetts, and for many years there was much objection to a separation of New Hampshire into a distinct province. This was accomplished, however, in 1680. John Cutt or Cutts was made the first President and ELIAS STILEMAN the first Secretary.

Mr. Stileman was from Salem where he had been Clerk of the Court, Register of Probate, &c. He was one of the earliest opponents of a separation from Massachusetts, but notwithstanding this he rose to the position of Deputy Governor, and, throughout his life, was one of the chief men of the new Province.

The Speaker forbore to mention the names of some men of great distinction who have lived here in later times, but would refer to one of his predecessors in office, who had been brought to mind to-day as the speaker stood looking over the extensive marshes between the river and some parts of the town. On those marshes, in Dec. 1722, Daniel Rogers of Ipswich, then Register of Probate for Essex County, who had been to Salisbury on some official business, lost his way

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to the ferry, and, straying about in a blinding snow-storm till completely exhausted, he fell and expired. His remains were deposited in the old High street burying-ground in Ipswich, and his grave stone bears a Latin epitaph indicating the manner of his death, which may be translated thus :—

The boisterous north wind with unstable force
 Restrains the anxious scamen from their course,
 Yet, sun-led through the seas, this northern blast
 Impels them to their destined port at last.
 So me the Boreal wintry storm has blest,
 Borne by its fury to eternal rest ;
 The Sun of Righteousness attracts my eyes,
 And guides me havenward, beyond the skies.

One Moses Gatchel, who lived near the place of his death, was arrested on suspicion of having murdered him, but no bill of indictment was found against him by the grand jury.

Much more might be said of the early inhabitants of this town,—of the exploit of a townsman, Major Robert Pike, one of the greatest soldiers in our Colonial history,—of the Indian troubles, &c.; but the lateness of the hour would not permit. On a suggestion of the Rev. Mr. Beaman, the speaker said he was reminded of a piece of information he had received to-day, that he knew would be gladly received by many, and that was the fact that the old church records which Mr. Newhall, in his excellent “Essex Memorial,”—published in 1835—declares to have been lost up to the year 1816, are still in existence, in the possession of the Hon. Caleb Cushing at Newburyport, and were, probably, preserved among the family papers of his ancestor, the Rev. Caleb Cushing, who was settled over the First Church, in Salisbury in 1698, and died here in 1752. It is to be hoped that this information is correct, as those records are of great historical value.

WM. C. BINNEY Esq., of Amesbury, said the people of his town were happy to receive a visit from the Essex Institute.

Amesbury had its Horticultural Society, which had been instituted, not as a rival or competitor of the County Society, but as a means of developing the resources of the locality. Their Society had proved a success, and he would be glad to welcome the Institute to their exhibition next Fall. Last year's exhibition showed that good stone fruit can be raised in the vicinity, and fine cherries and plums were presented. The trees manifested little if any effects of canker worms.

Rev. Mr. BEAMAN of Salem, who had been one of the party that visited the ancient relics, added to the statement of Mr. Goodell the fact that he had that day seen the first communion-service of the church in Salisbury, two flagons and a baptismal bason of pewter, procured in London two hundred-years ago. Also, four large folio volumes, of 600 pages each, of Richard Baxter's practical works, presented to the "Congregation of Protestant Dissenters, at Salisbury, in the county of Essex, in New England, who are at present under the charge of the Rev. Mr. Caleb Cushing." In the burial-ground the following inscriptions were thought worthy of notice. On one stone: "Here lies interred what was mortal of ye reverend Mr. James Allen, late teacher of the gospel and pastor of ye church of Christ in Salisbury, who died March 7, 1695, in the 37th year of his age." On the stone of the widow of Capt. Wm. Buswell, who died March 5, 1708, aged 83 years, are these words: "Reader, stand off, and thy due distance keep; For in this bed a friend of Christ doth sleep." Mr. Beaman subsequently called attention to a project started in Amesbury in 1849, to erect a monument to the memory of JOSIAH BARTLETT, a native of the town, who signed the Declaration of American Independence, immediately under the name of John Hancock. Some of the money has been subscribed, but more is wanted to enable

them to commence the undertaking. Two men have offered \$25 each, if eighteen more will subscribe the like sum.

Mr. BEAMAN presented the following resolutions :

Resolved, That the thanks of the Institute be presented to the Agricultural and Horticultural Society of Amesbury and Salisbury, and the citizens generally of those towns, for their very hospitable reception and kind attentions in providing for the tables and furnishing from sixty to seventy carriages to enable the company to ride over the territory, and see the scenery and examine into objects of historical importance. We would mention a few persons, whose names have come to us as having been especially attentive, namely—Hon. John G. Whittier, Hon. Thomas J. Clark, George Turner Esq., Frederick Bagley Esq., Mr. Enoch Huntington, Mr. Enoch Currier, Deacon A. E. Goodwin, Hon. Patten Sargent, J. B. Sargent Esq., Hon. Streeter Evans, Moses True Jr. Esq., Mr. William Proudman, Major Moses Eaton, William C. Binney Esq., Dr. Josiah B. Gale, Mr. David L. Dearborn, Mr. Philip Jones, Mr. Seth Clark, Mr. Joseph N. Clark. To these persons and all others who have shown us favors, we are under great obligations, and beg them to accept our gratitude and good wishes.

Resolved, That the thanks of the Institute be presented to the proprietors of the First Congregational Church for the use of their very handsome and spacious house for our public exercises.

Rev. E. B. WILLSON of Salem, seconded the resolution and spoke of the great enjoyment he had derived from his ride about this beautiful old town. His remarks were in a humorous vein and were pleasantly received.

The resolutions were unanimously adopted—and the meeting adjourned to Powow Hill, one of the highest elevations in the County, affording magnificent views of the ocean and of the surrounding country far and near.

J. J. H. GREGORY of Marblehead has furnished the sketch of the Topography, &c. of Powow Hill:

To one interested in the study of Geology, Powow Hill is a very interesting deposit. I risk but little in saying that it is one of the largest masses of drift in New England; in other words, it is one of the highest hills of its kind in New England. There are higher hills, and we may grade upward until we pass the invisible point which divides hills from mountains, and onward to our highest mountains, but I much doubt whether we shall find many masses of mere loose material piled so high as Powow Hill. Most hills of great height, and all mountains, whether isolated or in chains, as far as my reading and observations have extended, owe their height to the solid rock which makes them, or forms their nucleus. The rocky mass may not be readily apparent, the action of the elements through untold cycles having gradually broken down every projection, and the broken fragments having been still farther broken and decomposed, a soil has been made, the lowest forms of vegetable life have spread over the surface, supplying, by their decay, food for the higher forms, until, with the lapse of ages, the once bare rugged ledge has its angles smoothed, and its nakedness clothed with the trees and shrubs of the forest. Yet the rocky nucleus will generally outcrop at its apex, gravity having carried all fragments torn from its hoary head downward. By this process of "degradation," as it is termed, mountains and hills are gradually reduced in height; of the two classes, the drift hills, or in other words, the hills made

up of loose gravel, must have suffered most in their early years, when unprotected at their tops by soil and herbage. It is very safe, therefore, to say that Powow Hill was once considerably higher than at present,—how much higher it would require a nicer observation and more accurate mathematics than Geology is yet conversant with, to determine.

The origin of Powow Hill was, in brief, thus:—From thousands of observations in numberless localities, Geologists have arrived at the conclusion that thousands of years ago a great flood swept down from the North-west, (not Noah's flood,) covering the earth to the depth of a mile or more, and, tearing masses of rocks from hills and mountains, broke up, ground up, and deposited them in masses and beds over the surface of the earth. This was the origin of Powow Hill and others of its class.

Why is the soil of this hill so fertile, and so retentive of moisture to its very top? Doubtless this question has been often asked by the visitor, who, climbing with the expectation of finding but aridity and sterility, has been surprised, at every step of his advance, to find one of the most fertile and well watered (and, I may add, best tilled,) tract of land in the township. A moment's examination of those heaps of stones that industrious hands have collected from the tillage land will explain all. It will be seen that these heaps are made up, to a great degree, of a variety of clay slate, which appears to be readily acted on by the elements. The decomposition of this rock has given a soil abounding in clay, an element which is retentive of moisture. But not only does this rock give an element to the soil retentive of moisture, but it affords a liberal supply of potash and alumina, and thus makes it fertile.

These piles of stone, with the addition of some sand and gravel sprinkled in, would serve as very good models of Powow Hill as it must have appeared when first formed.

FLOWERS, FLOWERING SHRUBS AND VINES—IN AMESBURY AND SALISBURY.

BY JOHN G. WHITTIER.

Mayflower—Tuxbury's Woods, Salisbury, and several other places.

Dogtooth Violet—on the Powow River.

Arethusa—Northwestern side of Great Swamp and in Salisbury woods.

Cornus Florida—Bugsmuth Hill, just over the Amesbury line in South Hampton, N.H.

Rhodora—Salisbury Woods, Plains, and very abundantly at Pleasant Valley on the Merrimack in Amesbury.

Flowering Raspberry—Whitehall, Amesbury.

Orchis, white and purple—Great Swamp, Amesbury.

Wild Lily of the Valley—Woods near the village.

Wild Tiger Lily and small, light and very graceful *Yellow Lily*—On the Merrimack above Pleasant Valley.

Hare-bells—On the Merrimack banks, Amesbury and Salisbury.

Ground Nut—East Salisbury near depot.

Indian Pipe—Great Swamp.

Cardinal Flower—By the Powow River.

Pond Lily—Kimball's Pond.

Fringed Gentian, Closed Gentian—Salisbury (Old Orchard) and other places, and on Merrimack' River, Amesbury.

Witch Hazel—Foot of Powow Hill, and in Woods near the Village.

WILD FRUITS.

Cranberries—at Pond, and East Salisbury.

Blueberries—very abundant in both towns.

Huckleberries—abundant.

Plums—Beach and Sand-bluffs at Salisbury.

Ground Nuts—East Salisbury.

Gooseberries, Strawberries, Raspberries, Blackberries—common in both towns but not very abundant.

Grapes—Several varieties—some of fair quality—none very good.

PLANTS COLLECTED AT SALISBURY AND AMESBURY, JUNE 25,
1863, BY S. A. D. SHEPPARD AND GEORGE F. H. MARKOE.

Leucanthemum vulgare,	Helianthemum canadense,
Oldenlandia cœrulea,	Cypripedium acaule,
Trifolium pratense,	Rosa micrantha,
" repens,	" carolina,
Potentilla canadensis,	Prunella vulgaris,
Ranunculus acris,	Leontodon autumnale,
Iris versicolor,	Cerastium vulgatum,
Achillea millefolium,	Geranium maculatum,
Nuphar advena,	Viola cucullata,
Euphorbia cyparissias,	Gaylussacia resinosa,
Trientalis americana,	Polytrichum piliferum,
Pyrola rotundifolia.	Malva rotundifolia,
Moneses uniflora,	Capsella bursa-pastoris,
Sisymbrium bermudiana,	Hudsonia tomentosa,
Oxalis stricta,	Viburnum dentatum,
Kalmia angustifolia,	Raphanus, raphanistrum,
Arum triphyllum,	Sambucus canadensis,
Sparganium eurycarpum,	Taraxacum dens-leonis.
Linaria canadensis,	

Friday, August 7, 1863.

THE FIELD MEETING AT ROCKPORT, this day was attended by more than three hundred persons. The weather was delightful, and a better selection of a day could not have been made to secure comfort and pleasure in exploring the various interesting localities, which are so abundant in this region. The granite quarries, breakwaters, beaches, Pigeon Cove, the points affording splendid sea-views, and other objects of investigation were duly visited, also the large and valuable Mineralogical collection of Rev. Stillman Barden, comprising not only rich local specimens but rare articles from abroad, disclosed its many treasures for the delight and instruction of the curious.

The afternoon meeting was held in the Universalist Church, of which Rev. Mr. Barden is the pastor, and called to order at 2 o'clock, by A. C. GOODELL, Esq.

The records of the preceding meeting were read, and the donations were announced as follows :

To the Library—George Perkins ; Canadian Institute at Toronto ; Redwood Library and Athenæum ; C. B. Richardson, New York ; Mrs. A. G. Browne ; American Academy of Arts and Science ; American Geographical and Statistical Society ; Philadelphia Academy of Natural Science ; Boston Society of Natural History ; Editor's British American Magazine ; C. T. Jackson, Boston, Mass. ; Richard Wheatland ; H. S. Cox, of Lynn ; E. M. Stone, of Providence ; E. P. Robinson, of Saugus ; Mrs. Mary E. Wheatland ; Horace S. Traill ; Robert S. Rantoul ; H. M. Brooks ; L. A. H. Latour, of Montreal, C.E.

To the Cabinets—John Robinson ; Charles F. Nichols ; S. S. Simonds ; Job Burchstead ; James Bartlett ; John Orne ; S. Q. Felt ; Abner C. Goodell Jr. ; H. M. Brooks ; John C. Osgood ; Eben Blatchford.

Letters were announced from Trustees of Beverly Public Library ; Pennsylvania Historical Society ; Trustees of Boston Public Library ; Maine Historical Society ; Redwood Library and Athenæum ; Trustees Newburyport Public Library ; Massachusetts Historical Society ; S. L. Batchelder ; L. P. Smith ; G. W. Skinner of Gloucester ; Charles W. Swasey ; C. M. Tracy of Lynn ; William Merritt ; W. B. Rogers of Boston ; Francis Alger of Boston ; A. W. Dodge of Hamilton ; L. Agassiz of Cambridge ; E. P. Robinson of Saugus ; Long Island Historical Society ; J. E. Oliver of Lynn ; also from the Committee of Arrangements of the Memorial celebration at Fort Popham, inviting the Institute to attend "the public celebration of the 256th anniversary of the founding of the first English Colony on the shores of New Eng-

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land, Aug. 19, 1607, (O. S.) to take place near the site of Fort Popham, and the place of the original Fort George, at the mouth of the Kennebec river, in the ancient Province of Sabina, Aug. 29 1863." This letter was referred to the President and Vice President of the Historical Department, to take such action as they may deem appropriate.

Mr. GOODELL then requested Hon. ALLEN W. DODGE, as Chairman of the Committee on Field Meetings, to take the Chair. Upon so doing, Mr. Dodge remarked that he had not seen much himself to comment upon, but there were those present who had made different branches of natural history specialities, and whom he would introduce to the audience. He could only say generally that if, as was sometimes observed, these things were getting to be old stories, provided only they were good stories they would bear to be repeated. When Mr. Tracy tells us of flowers he could see new beauties in them, and so when the geologists tell us about rocks and the zoologists about animals. It is a wonder that we are not attentive enough to see the beauties and uses of things in nature. Some roam about in the fields and can not tell any more about plants than they can about the sermons which they hear in church. We train some of our faculties—why not the power of observation? We ought to cultivate these faculties, and the object of the Institute is to encourage people to observe common things. Theorizing without facts will not answer—we must get facts and stand on the laws of nature. One of the most rational employments of the mind is the study of nature.

Rev. Mr. BARDEN of Rockport was then introduced, but he simply remarked that he would speak by proxy, and, after exhibiting a splendid specimen of Scapolite and adding a few comments he called upon Dr. Jackson.

Dr. CHARLES T. JACKSON of Boston responded and made

some very interesting remarks upon mineralogy. He said that the two great abutments of the arch of society are agriculture and mining—all the arts refer back to one of these two. Mineralogy is the first great division, starting at the foundation stone. Every thing not vegetable or animal is mineral. The minerals are either in masses or in crystals. The latter are the flowers. There are six divisions of crystals and each crystal is an individual, governed by a fixed law, as fixed as in birds or other animals. The object of scientific research is to ascertain the laws of nature.—Chemistry is the physiology of mineralogy. Too much of mathematics has been dragged into mineralogy—a display of learning has injured science. Dr. Jackson paid a very complimentary tribute to local geologists. He said that Lyell in his famous work on the geology of Italy, instead of relying upon his own observation trusted to the local geologists. The local geologist, Dr. J. said, finds many things which a stranger could not, and if he should ever again receive an appointment of State geologist, instead of taking as an assistant some politician or person appointed from partisan, family or friendly motives, he should greatly prefer the help of the local geologists—the clergyman, physician, or citizen,—such as are to be found in every place, who had paid especial attention to the geology of their own locality. He said that Dr. Hitchcock, in his excellent work on the geology of Massachusetts, had mentioned but one mineral as found in Rockport, while the researches of the local geologists had discovered many, which he enumerated; among these were smoky quartz, green feldspar, fluorspar, silicate of manganese, small zircons. Many were in beautiful crystals and may be considered the flowers of mineralogy. To the labors of Rev. Mr. Barden, we are largely indebted for making us acquainted with this interesting locality.

Rev. G. W. SKINNER, of Gloucester, who had found the study of nature intensely charming as well as instructive, said he

had paid more attention to geology than to mineralogy, and that the subject of fossils had particularly attracted his notice, having resided for some time in the vicinity of Trenton, N. Y., where the Silurian Fossils abound. He gave a brief account of some of the principal species there found.

Mr. C. M. TRACY of Lynn, being called upon, alluded to the favorable impressions he received while listening to a course of lectures by the first speaker on mineralogy some twenty years since; and to these he attributed no small part of the interest he now felt in the subject of natural history. Pleasantly alluding to the remarks of the two speakers who had preceded, to the effect that the crystals were the flowers of the rocks, and the fossils the flowers of rocks of a more recent formation, he said we have here the living flowers, and the world was not rendered habitable till the rocks were covered with soil, and clothed with beautiful verdure. He then described the flowers which had been gathered, in his pleasant and instructive manner. Among these were the beach pea, a relative of the sweet pea but not of the eatable kind: the woodbine, or better called the american creeper, which comes very near being a grape vine: the catbrier, the plague of our thickets and representing to us the true sarsaparilla: the wild sarsaparilla and the dwarf elder, which do not merit the name, having no affinity with the sarsaparilla, but more with the parsnip and celery: the sweet alder or pepperbush, belonging to the Heath Family but flowering later than most of its fellows: the checkerberry, belonging to the same family and well known for its spiciness, but called by too many names: the seaside golden-rod, one of the showiest and betraying the effect of the saline air by its fleshy leaves; the sea-rocket, affected in the same way and taking so much salt as to taste of it; the hemp, well known for its fiber, and closely akin to the *Cannabis Indica*, or intoxicating Indian hemp: the field clover, familiarly called "pussy clover" from its wooly heads: and the dodder, whose truly

parasitic habits make it, to us very remarkable, though it is far from useful, one species injuring the flax-fields in Europe.

Mr. WILLIAM R. DEANE, of Brookline made some remarks pertinent to the occasion, in which he praised the custom of ladies joining in scientific and historical excursions like the present, and expressed delight with this pursuit of the knowledge of nature, where

“Some pensive creep along the shelly shore,
 Unfold the silken texture of a flower :
 With sharpened eyes inspect a hornet's sting,
 And all the wonder of an insect's wing.
 Others trace, with curious search, the hidden cause
 Of nature's changes, and her various laws :
 Untwist her beauteous web, disrobe her charms,
 And hunt her to her elemental forms”

Mr. HORATIO GATES JONES, of Philadelphia, after a few general remarks, alluded to some of the botanists of Pennsylvania, among whom were Dr. William Darlington of West Chester, recently deceased, author of several works on botany, and William Bartram, of Philadelphia, who may be considered one of the pioneers of American botany. He then alluded to some investigations that had lately been made by him in the early history and statistics of paper-making, alluding to the Rittenhouse Paper Mill in Philadelphia, which is presumed to be the first of its kind established in this country. It was built in 1690. He alluded to the fact that the fibre of the poplar, after being converted by chemical means into a pulp, is largely used in the manufacture of paper.

Rev. Dr. J. C. STOCKBRIDGE, of Chelsea, made some pleasant remarks of a general character.

A lobster just in the process of casting off its shell was placed upon the table, and Mr. EBEN BLATCHFORD of Rockport, made some interesting remarks descriptive of this interesting feature in this class of animals.

Our motion of the Secretary the thanks of the Institute were tendered to the Citizens of Rockport for their kind attentions ; also to the Proprietors of the Universalist Church for the use of their commodious building to hold this meeting. Adjourned.

Thursday, August 20, 1863.

THE FIELD MEETING, ON SALEM NECK, this day, attracted the largest audience ever assembled on an occasion of this kind, numbering, it is estimated, not far from two thousand people. The forenoon was devoted by the guests from other towns to an examination of the Library and Museum of the Institute and the Library of the Athenæum in Plummer Hall ; the rare collection of the East India Marine Society, which was kindly opened by the Association for the gratification of the strangers ; the Court Houses, and other objects of curiosity. A small party, interested in antiquarian studies, visited, under the genial guidance of Mr. Vice-President Goodell, various places of historical note, including the former residences of some of our ancient worthies, the remnant of the old First Church, Gallows Hill, and other points memorable for their historical associations or for the relics which they contain.

At noon vehicles were provided for the transportation of the company to Hospital Point, which soon presented a spectacle of extraordinary interest and picturesqueness ; at this place the refreshments were provided in pic-nic style ; and the meeting was held at 2.30 P.M. in a spacious tent erected for the occasion.

The President ASAHEL HUNTINGTON presided and welcomed the company in the most cordial manner. He gave a summary of the objects of the Institute and of the Field Meetings, and happily styled the association the Grand Inquest of the County—not in relation to crime and misdemeanors, but in re-

gard to whatever is to be found upon or beneath its surface, or relates to its natural or local history in every department. He invited the people of the County to co-operate in these objects, to become members of the Society, and to contribute to its library and cabinets whatever of interest or value they were willing to spare for the purposes contemplated.

Records of the preceding meeting were read.

Donations were received, since the last meeting, as appears by the report of the Secretary, from the following :

To the Library—Long Island Historical Society ; Henry R. Stiles of Brooklyn, N. Y. ; J. W. Thornton of Boston ; Massachusetts Historical Society ; W. P. Upham ; Beverly Public Library ; Oliver Carlton ; Joseph A. Goldthwait ; A. Lincoln of Boston.

To the Cabinets—F. H. Lee ; H. M. Brooks ; S. Q. Felt ; B. O. Peirce of Beverly ; James H. Emerton ; J. A. Smith ; Alfred S. Peabody ; Capt. Robert Manning.

Letters were read from Trustees of New York State Library ; Newburyport Public Library ; Henry R. Stiles of Brooklyn N. Y. ; Benj. Greenleaf of Bradford ; S. H. Scudder of Boston ; W. R. Deane of Brookline ; H. G. Jones of Philadelphia ; Joel Munsell of Albany N. Y. ; J. J. Babson of Gloucester ; Charles W. Felt.

As especially appropriate to the locality, the President first called upon the Rev. JOSEPH B. FELT, LL. D., whose Annals of Salem and other historical productions were complimented for their completeness and thoroughness, for some information concerning Salem Neck. Dr. Felt then read a paper containing many valuable memoranda and historical statements respecting the Neck, Winter Island, and the fortifications—the place being prominently connected with the history of Salem from its earliest settlement. This paper is

printed in the Historical Collections of the Essex Institute.
(See vol. v. page 255.)

H. WHEATLAND, the Secretary, next read a list of the minerals found on the Neck by the researches of some of the young mineralogists of the Society. It appears that, a few years ago, a beautiful blue mineral was discovered in a quarry near Fort Lee, which was at first called cancrinite, but when analyzed was found to be sodalite. It was then thought to be exhausted, but subsequent and quite recent investigations have followed the vein in deeper and some very good specimens have been obtained. The sodalite is found in veins of elcœolite, which is itself rare in this country, it being known only in Arkansas. It has been found with sodalite and cancrinite at Litchfield, Me., but is believed to be now exhausted. Last fall a large vein of elcœolite was discovered near the other but it has not yet been found to contain any sodalite. The following minerals, in small quantities, have been extracted from these veins, viz.: zircons, white iron pyrites, black mica in crystals, hornblende crystals, magnetic oxide of iron, small seams of opal, and perhaps, fluor spar and molybdenite.

Rev. STILLMAN BARDEN of Rockport spoke very eloquently upon his favorite subject, and remarked upon the rarity of some of the minerals named. He urged the importance of having our eyes open and of learning more of the wonders of nature immediately about us. One of his friends, he said, had written a charming book of Science, entitled "A Walk in my Garden." He did not need to go even so far as his garden; on his own doorstep he found deep themes for study and contemplation. He felt grateful to God every day that He has provided so many beautiful things to look upon, investigate and enjoy. He complained that scientific collections were not thrown open with sufficient lib-

erality to the public. For his part he was always ready to promote the cause of Science by giving the freest access to his collections.

Rev. G. W. SKINNER of Gloucester exhibited a number of beautiful crystals some of them closely resembling diamonds, and explained the wonderful process of the formation of the crystals of oxide of silicon—how granite was decomposed by great and continuous heat—and how the crystallic force in nature was ever active. His remarks were very interesting and attentively listened to, and the audience were thankful with him that we could now investigate these mysteries of nature without being denounced as heretics or hanged for witchcraft.

Brief remarks were made by Messrs. WILLIAM R. DEANE, of Brookline, and WILLIAM B. TRASK, of Dorchester, the latter a descendant of Captain William Trask, one of the early planters of Salem.

Mr. DAVID PULSIFER, the distinguished antiquarian, of Boston, formerly of Salem, made some very earnest remarks, and referred to recent purchases of the original Solemn League and Covenant signed by the Covenanters of Scotland in 1638, and of some rare folio volumes of the Bible, printed in 1469—which had been secured at high prices to be preserved in this country. He spoke with enthusiasm of the labors of the members of the Institute, and of the richness of the old county of Essex in materials of historical interest and value.

At this point the roll of thunder and indications of a heavy shower became so threatening as to cause a speedy adjournment, much to the regret of the audience, as there were many other speakers present who would have delighted and instructed the listeners. In addition to members of the In-

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stitute, who are always ready in their various departments, there were present from abroad Nehemiah Cleaveland, Esq., of New York; Rev. Dr. E. L. Cleaveland of New Haven, Conn.; Hon. J. Hammond Trumbull of Hartford, Secretary of the State of Connecticut; Rev. Mr. Peabody, a returned Missionary; Wm. C. Binney, Esq., of Amesbury; Hon. J. J. Babson of Gloucester; and many others.

Wednesday, September 2, 1863.

MEETING this day, at noon, J. G. WATERS in the Chair.

WILLIAM P. UPHAM stated that the U. S. Government propose to build one or more Forts in Marblehead, and suggested, it was proper that one of them should bear the name of "Glover," a deserving tribute to the memory of Gen. John Glover of Revolutionary fame, and, on his motion, it was

Voted That a Committee be appointed to co-operate with the town authorities and citizens of Marblehead in such a manner as may be deemed appropriate to obtain this, so desirable an object.

Messrs. W. P. Upham and A. C. Goodell Jr. were appointed on said committee. Adjourned.

Thursday, October 22, 1864.

The last Field Meeting the present season was held at Newbury this day, having been postponed from yesterday on account of the weather. The larger portion of the party proceeded directly to Newburyport, and, having the fortune to be under the guidance of a native of the place, Rev. George D. Wildes, Rector of Grace Church, Salem, visited many objects of interest in this locality, so rich in historical associations; after devoting several hours very profitably and very pleasantly to this exploration, the party proceeded to the

vestry of the Old-Town Church in Newbury, which was built by the Ladies Benevolent Society, where the afternoon meeting was held.

Several alighted from the cars at the Serpentine quarry, collected specimens of minerals, also zoological from woods adjacent and on the road side to the place of rendezvous. The old burial ground in the vicinity of Rev. Dr. Withington's church offered many objects of interest and presented many quaint inscriptions; The venerable Pastor of this parish, who was settled in 1816, joined the company at the vestry and added interest to the meeting by his presence and remarks. Dr. W. in his 75th, year is still hale and vigorous. In 1804 he was among first apprentices to the printing business in the office of the late J. T. Buckingham. He subsequently entered Yale College, and his scholarly, honorable, and useful career since is well known.

The meeting was called to order at 3 P. M.,—A. C. Goodell, Jr., one of the Vice Presidents, in the chair. Records of preceding meeting read, &c.

Donations were announced from the following, received since the Field Meeting, Aug. 20, 1863 :—

To the Library—Humphrey Devereux; Firelands Historical Society of Norwalk, Ohio; American Academy of Arts and Science; Miss A. M. Hemmenway of Ludlow, Vt.; Montreal Society of Natural History; J. Hammond Trumbull of Hartford, Conn.; Trustees of New York State Library; Iowa Historical Society; Charles T. Brooks of Newport, R. I.; Henry M. Brooks; E. P. Robinson of Saugus; N. J. Lord; Mrs. James Chamberlain; Adams, Sampson & Co., Boston; C. B. Richardson of New York; Editors of British American Magazine; George R. Curwen; Redwood Library and Athenæum; Charles F. Nichols; Henry P. Nichols; R. S. Rantoul; R. Damon of Weymouth, England; Long Island Historical

Society; William P. Tucker of Portland, Me.; M. A. Stickney; American Geographical and Statistical Society; James Chamberlain; Connecticut Historical Society; William Stone; Mrs. Lydia D. Parker of Boston; Robert C. Mills; Philadelphia Academy of Natural Science; George Perkins; Lynn Free Public Library.

To the Cabinets—From John Robinson; Charles F. Nichols; Henry F. King; B. Deland; Wm. P. Martin; A. F. Clark; James Kimball; James H. Emerton; Arthur Upton; Daniel L. Proctor; Mrs. H. M. Colcord of South Danvers; C. F. Williams; Stephen W. Hall; Charles H. Higbee; Samuel Phillips, Jr., of Boston; F. H. Lee; Nathan Nichols; W. G. Welch; J. B. Haskell; Franklin Grant; Lawrence Phillips; A. S. Peabody; Mrs. G. B. Mason of Lynn; N. A. Frye; Samuel Hultman; Mrs. M. D. Wallis of Beverly; B. Brown; W. B. F. Johnson; Mrs. J. Chamberlain; Mary E. Williams; Samuel Shepard; A. C. Goodell, Jr., Geo. Harrington.

Letters were read from Firelands Historical Society; Corporation of Brown University; Maryland Historical Society; George A. Walton of Lawrence; Amesbury and Salisbury Agricultural Association; L. Agassiz of Cambridge; Iowa State Agricultural Society; Francis H. Wade of Ipswich; Mrs. L. D. Parker of Boston; E. P. Robinson of Saugus; Long Island Historical Society; J. Hammond Trumbull of Hartford Conn.; Regents of the University of New York; H. A. Smith of Cleveland Ohio; Mrs. P. A. Hanaford of Beverly; John Bertram; Edward Ballard of Brunswick Me; Salem Temperance League; O. Howe of Beverly.

The Chair in opening offered some general remarks upon the objects of the Institute and the mode of carrying out the various plans of its organization. He mentioned that the committee having in charge the lectures and evening meetings had arranged, that, on the 2d and 4th Monday evenings

of each month, a meeting of the Institute will be held at their rooms, Plummer Hall, commencing at 7 o'clock; on the intermediate Monday evening Mr. F. W. Putnam will deliver a lecture, at the same time and place, on some zoological subject, illustrating the same with specimens from the Cabinets. A course of ten Scientific Lectures will also be delivered at the Lyceum Hall, Salem, usually on Thursday evenings, commencing about the middle of November.

Rev. Dr. WITHINGTON of Newbury gave a brief account of the early history of the church of which he is the present pastor and over which he has been settled about fifty years. He alluded very happily to the conservative character of his church during the Whitefield excitement, a century since, the unhappy differences arising therefrom with the sister churches, and the peaceful settlement of all discord at the time of his ordination. Dr. W. casually stated that his parish, when he was settled, was the largest in extent in the county, and contained 2500 people; and as the law then would not allow the other ministers to marry members in his parish, he enjoyed the monopoly of the business, and joined in marriage an average of twenty-five couples a year.

The Rev. GEORGE D. WILDES of Salem, being called upon by the President, occupied nearly an hour in a very interesting resume of the incidents of the morning's ramble, interspersing the same with very graphic historical sketches of the houses, localities and people of the olden times of Newbury and Newburyport. Quite a large number of the members of the Institute had been detained by engagements at Salem, until a late hour, and the valuable remarks of Mr. Wildes enabled them to follow the course of the Institute in the visits of the morning.

Mr. Wildes stated in substance, that no towns in our ancient, and truly old English County, were more fruitful in

interesting historic association, than Newbury and Newburyport, from the earliest to the latest dates in their history. Many of the inhabitants of these towns, or their descendants, had held very prominent positions among the literary, the commercial, and most distinguished men of the country in all departments of active life. Taking up the several localities visited in order, Mr. W. resumed the remarks which he had made at the various points of interest visited in the morning. Prominent among these were the "Dexter Museum" now occupied by Dr. E. G. Kelly, and illustrating in its restoration, and in the beautiful gardens about it the well known taste of its hospitable proprietor: The "Mall" once the Camp ground of a portion of Arnold's Expedition to Canada: the house of the Misses Tracy where are deposited the beautiful paintings by Copley, of Col. and Mrs. Lee of Marblehead. Copley is said to have remarked of these, when in later life asked which were his best paintings, that those at Newburyport were regarded by him as foremost among his works. Mr. W. then spoke of the "Wolfe Farm" now the Merrimack House; the Tracy Mansion, where Washington, Lafayette, Talleyrand, Louis Phillipe, Chateaubriand and others were at various times guests; "St. Pauls Church" with its old altar piece, and the exquisite memorial Chapel erected by Rev. Dr. Horton; the tomb of Bishop Ban, the first Bishop of Massachusetts; the Ferry Way; the residence and work shop of Jacob Perkins, the famous Inventor and Engraver; the law office of Chief Justice Parsons, where J. Q. Adams, Rufus King and Robert Treat Paine and other eminent men studied; the "Old South Church" with the monument and tomb of Whitfield; the ancient Colonial Jail; the "Old-Town Meeting House"; the Green where another portion of the Canada Expedition encamped; the ancient Grave Yard of Newbury, where the party found many unique epitaphs; several old houses of historical interest; among others, the Garrison house now the Pettingell Farm

and many other objects of great interest among the antiquities of the County. Our limits forbid a fuller account of the remarks of Mr. Wildes, which were listened to with marked interest and awakened much zeal in the historical reminiscences of the ancient towns of Newbury and Newburyport.

Mr. F. W. PUTNAM mentioned that in company with several members he had visited the serpentine quarry and found some interesting specimens of serpentine, asbestos, &c. During his rambles in the woods adjacent and the road to this place he had collected several specimens of Insects and Mollusca. Instead of alluding to these at this time he would confine his remarks to the habits of the humble bee, which he had observed during his residence, the past summer, on the banks of Lake Champlain; he spoke of the formation and growth of the colony, comparing the same with those of the common honey bee. He also alluded to the habits of the leaf-cutting bees and the manner of constructing their cells from circular pieces cut from the leaves of the common rose bushes. A general resume was then made of the several species of Reptiles and Fishes found in this county, with some remarks upon their habits.

Rev. C. C. BEAMAN of Salem spoke of the old burial place near by, called up some old associations respecting several worthies of the olden time whose remains lie buried there, —and read some of the epitaphs which were inscribed upon the tablets erected to their memories. He concluded by offering the following votes of thanks, which were unanimously adopted.

Resolved, That the thanks of the Institute be presented to Dr. E. G. Kelly, William Ashby, Esq., the Misses Tracy, and Mrs. J. C. Fletcher, friends in Newburyport, for their very polite attentions in affording facilities for satisfying the

curiosity for things rare and of historical and antiquarian value; also, to Mr. Ashby, for his generous hospitality.

Resolved, That we tender our thanks to the Ladies' Benevolent Society of Newbury, for the generous loan of their hall, and to Dr. Withington and Mr. Edmund Smith, for their polite attentions during the day.

The meeting then adjourned and the company made a pleasant call upon the venerable Joshua Coffin, Esq., to pay their respects to the historian of "Ould Newberry." Mr. Coffin's health has been quite feeble and would not permit him to attend the meeting, but it is now improving and all were glad to take him by the hand before proceeding to the cars for home, which was reached safely after a day of uninterrupted interest and enjoyment.

Monday, October 26, 1863.

Meeting this evening, at 7 1-2 P.M. A. C. Goodell Jr. Vice President in the Chair.

Records of preceding meeting read.

Donations were announced from the following:

To the Library—From C. B. Richardson of New York; G. F. Bagley of Amesbury; Francis H. Wade of Ipswich.

To the Cabinets—From James H. Emerton; George Harrington; John Robinson; James M. Caller; H. P. Nichols.

Letters were read from Trustees of Newburyport Public Library; Department of the Interior; Benjamin Peirce of Cambridge.

Mr. F. W. Putnam read the following communication from Mr. James G. Shute of Wourn on the manner of birth in the Opossum, observed by him while in Beaufort N. C.

The date of the birth was March 16th, 1863. During the

delivery of the young the parent lay on the right side, with the body curved in such a manner as to bring the sexual orifice opposite that of the pouch, the mouth of the pouch was open or drawn down by contraction of the muscles so as to receive the young when delivered. The young were seven in number. The time occupied in delivery was about four hours. The parent remained in the same position about thirty-six hours and refused all sustenance.

Immediately after the transfer of the young to the pouch I removed one, by detaching it from the teat, in order to ascertain if the movement of the foetus was instinctive. I found that it was at least partly voluntary, as it made an effort to regain its place in the pouch, and the same movement was made by the parent, as at first, to receive it. I did not notice any use of the limbs or lips of the parent during the transfer of the young.

Mr. F. W. Putnam stated the results of his investigations on the growth of fishes noticed during his residence on the borders of Lake Champlain during the past season. Adj.

Monday, November 9, 1863.

Meeting this evening, Vice President Goodell in the Chair.

Records of preceding meeting read.

Donations were announced from the following :

To the Library—From Department of the Interior; Henry Wheatland; Jonathan Perley Jr.; Editors of British American Magazine; John B. Alley, M.C.; Zoologische Gesellschaft, Frankfort a. M.; John L. Sibley of Cambridge; John H. Silsbee; George Blake.

To the Cabinets—From H. F. King; Charles F. Nichols; C. H. Higbee; Henry Wheatland; Frank P. Watson.

Letters were read from the Trustees of Boston Public Library; Smithsonian Institution; George Perkins; Arthur J. Upton; F. W. Putnam; C. T. Jackson of Boston; J. W. Proctor of South Danvers.

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Henry Wheatland presented in behalf of Charles Davis of Beverly two Record Books of the Essex County Health Insurance Company, established in Beverly in 1847. In connection with this he exhibited several policies of Insurance issued about a century since and gave a brief sketch of the various modes of Insurance practised in this vicinity from that time to the present.

Charles Davis of Beverly being called upon gave a very interesting account of the operations of this Society during the two years of its existence.

This subject was further commented upon by Messrs C. C. Beaman, James Kimball and the Chair.

F. W. Putnam made some remarks on the Iron Mines at Port Henry suggested by specimens presented by Samuel Gray of Portsmouth, N.H..

William P. Upham read a letter from J. W. THORNTON of Boston relative to the naming of the new fort at Gloucester "Fort Conant," referred to the committee appointed in September last on naming of the Fort at Marblehead.

Remarks were offered by several members suggested by the donations presented this evening. Adjourned.

Monday, November 23, 1863.

Meeting this evening Vice President Goodell in the Chair.

Records of preceding meeting read.

Donations were announced from the following:

To the Library—From Iowa State Historical Society; American Geographical and Statistical Society; R. A. Guild Librarian of Brown University; J. D. Hedge Librarian of Providence Athenæum; Estate of John Russell; D. H. Johnson, Jr.

To the Cabinets—From James Chamberlain; H. S. Wheeler of Newburyport; Miss E. K. Roberts; Mrs. T. Hunt; O. H. Saunders; John Robinson.

Letters were read from Massachusetts Historical Society; Iowa State Historical Society; Robert H. Ives of Providence; H. S. Wheeler of Newburyport.

The Chair introduced HENRY L. ORDWAY of Ipswich who exhibited and explained an invention for preserving trees from the ravages of the Canker Worm.—

Mr. Ordway spoke as follows:—

Very little has been said and written concerning the habits of the Canker Worm until quite recently, that is of much benefit to the owners of fruit trees.

Professor Peck's Natural History of the Canker Worm and Dr. Harris' book on Insects have been so universally circulated, that a general description of the insect will not be necessary.

The female, or grub,* commences to ascend the trunks of trees early in autumn, but not before the ground has been slightly frozen. Some seasons I have seen them appear upon the trees as early as the first week in October; while this last autumn they did not appear until the second week in November. Thus it would seem the action of the frost has something to do with the time of their appearance. It has often been remarked that the eggs which are deposited in autumn do not come to maturity, inasmuch as they are destroyed by the severe cold of winter, and that it is needless to prevent the grubs from laying their eggs upon the trees. This is doubtless a mistake, and is one reason why the numerous expedients that have been adopted, to check the ravages of the worm have not proved more successful. For several years past a large majority of the grubs have deposited their eggs in the fall. They have changed their habits in this respect as formerly the grubs were seen in larger numbers in the spring than in autumn. If then a majority of the eggs are deposited in autumn it is

* The term *grub* is here used to designate the adult female and not the larva.

reasonable to presume that the insect may at no distant day exterminate itself, provided we admit the truth of the above statement. I can think of only one reason why the eggs deposited in autumn are not as liable to hatch as those deposited in spring, viz: The males, or millers, are seldom seen in autumn, while in spring the males are more abundant than the females. Hence it is a reasonable conclusion that the eggs deposited in autumn are not all impregnated. The grubs are very tenacious of life. No amount of cold or wet seems to affect them in the least degree. Subject them to the coldest weather; freeze them solid as ice and it will not prevent them from laying their eggs, after placing them in a warm room.

A great many people believe that the Canker Worm will descend from the trees on the 17th of June, this idea is not correct, the time of their leaving the trees is governed by the time of their hatching from the eggs. If the season is backward, and the trees do not put forth their foliage, as a matter of course the young worms will not make their appearance. The same degree of heat that causes the buds to expand will cause the eggs to hatch. After which it will require a certain number of days for them to arrive at maturity. They will then leave the trees and not before unless obliged to do so for want of food. In the summer of 1861 I commenced to catch the larvæ for experimental purposes on the 17th of June and found them quite numerous until the 26th, some of these worms were placed in a glass tube filled with earth and others in a barrel in which sods were placed. In both instances the experiments were conducted in the open air, and were quite successful. The worms in the tube burrowed in the earth to a depth of about four inches, while those in the barrel formed their chrysalides among the roots of the sods not going quite so deep as those in the tube. The worms in the tube did not immediately change into the chrysalis state but remained in the larva state at least six days. On the fourth day after the worms had disappeared from the sides of the tube I opened some of the chrysalides and found the larva snugly packed away without change, except that it was reduced in length about one half, and on being disturbed it commenced spanning off in the usual style.

The question is sometimes asked how do the Canker Worms move from one place to another? How is it that

some orchards are eaten so badly year after year and others not far distant are not eaten at all? These questions can not be answered satisfactorily perhaps, but it would not be amiss to conjecture or guess how they travel, or by what means the change is brought about. The grub governed by her instincts ascends the first upright object that comes in her way and deposits her eggs indiscriminately, going no farther than is necessary to effect her purpose. Clusters of eggs are frequently seen upon fences, posts, houses, &c. The young insects generally are supposed to die when hatched in places where they cannot find food, but this summer I put some eggs into a small bottle, where they hatched and were allowed to remain four or five days without food. On letting them out of the bottle they were as lively and vigorous as when hatched upon a tree. I believe the young worms hatched upon the trunk of a tree are able to sustain themselves until they reach the foliage, even if they are obliged to travel to the extreme top of the tree. The worm, I think, is to a certain extent migratory in its habits, not that they travel in swarms as some species of caterpillars do, but that they are sometimes forced to leave the trees upon which they were hatched for want of subsistence and go to others not eaten, where after remaining a short time, they mature, spin down a second time, and go into the ground, where they remain until autumn, when the grubs ascend the trees upon which the worms were matured. Hence it is plain that the worm causes the change in locality and not the grub as many suppose. The worms are often times blown by high winds considerable distances toward other orchards, when they travel the remainder of the rout thus making a change in that way.

One other means by which this insect is sometimes changed from one place to another is by transplanting fruit trees from nurseries that are infected by these pests. Valuable orchards have been almost destroyed in this manner.

As the female insect is so very prolific all means should be employed for their extermination. Plough the orchard soon after the larvæ form their chrysalides, and allow the swine and poultry to run at large among fruit trees.

We have another exterminator in the common garden toad. It is surprising to see what quantities of worms they will despatch at a single meal.

There is one other subject to which I wish to call your at-

tention before closing these remarks, and that is in relation to the male insect. As it is of no consequence about keeping the male from ascending the trees; those who have written upon the habits of the Canker Worm have neglected to say anything regarding him. I should like to have some one who understands this matter explain the manner in which they get out of the ground, and how they appear when first seen.

F. W. Putnam said that there were at least three species of insects known as Canker Worms. Two of these belong to the genus of the true Canker Worm *Anisopterix* and are very much alike in habits and in their general appearance. The third species is larger and the larva is of a yellow color. There are several enemies to these pests; of these the large handsome ground beetle, the mason wasp and the ichneumon fly called *Platygaster*, which lays its eggs in those of the Canker Worm, and as the young *Platygaster* feeds upon the Canker Worm's eggs their development is secured at the expense of the latter.

Remarks were then made by Messrs. C. C. Beaman, Ordway, J. M. Ives, and Putnam on the geographical distribution, of the Canker Worm and its disappearance in certain seasons, &c. The opinion prevailed that this State is nearly its northern limit.

On motion of Mr. Beaman,

Voted That the thanks of the Institute be given to Mr. Ordway for his useful, and instructive remarks on the subject of Canker Worms.

On motion of Mr. James Kimball,

Voted, That the officers of the Army and Navy stationed in this city and vicinity, or at home on furlough, be invited to visit the Institute at such times as may be convenient.

Adjourned.

Monday, December 14, 1863.

Meeting this evening, the President in the chair.

Records of preceding meeting read; and donations were announced from the following:

To the Library—from Jonathan Tucker; Miss E. S. Hotchkiss of New Haven, Conn.; N. J. Lord; Society of Arts, Manufactures &c., London; John B. Alley M.C.; Redwood Library and Athenæum; J. L. Jenkins.

To the Cabinets—from C. F. Nichols; D. M. Balch; Edward H. Knight; James H. Emerton; Charles H. Higbee; H. P. Nichols; J. C. Stimpson; Miss Quiner of Beverly; Theodore F. Brown; Frank P. Watson; Daniel P. Fitz; A. R. Russell; John M. Ives; George Abbot.

A letter was read from JOSEPH A. TORREY of Providence, in relation to printing. In this connection Mr. Goodell presented some remarks upon the combination types and other improvements in type-setting as suggested by C. W. Felt of Salem, with some allusion to Mr. F.'s type-setting and justifying machine, now nearly finished, and in a condition to test the merits of the invention, to a great extent.

A letter was read from JOHN A. MC'ALLISTER of Philadelphia, accompanying an impression from an old plate in his possession, "a Caricature of the Congressional Pugilists in 1798." A brief account of the scene to which this referred was read from the Congressional Journal of that date, and a brief sketch of Roger Griswold M.C. from Connecticut, and Matthew Lyon M.C. from Vermont, the persons represented therein, was given by the Secretary.

Letters were also read from Chicago Historical Society; Directors of Providence Athenæum; Pennsylvania Historical Society; Trustees of New York State Library; R. S.

Rantoul; Chas. W. Tuttle of Boston; N. E. Atwood of Provincetown; Daniel H. Johnson, Jr.; Iowa Historical Society; Jacob Batchelder of Lynn; Editors of the Round Table.

W. P. UPHAM from a Committee appointed at a previous meeting, submitted the following statement:—

In making the recent alterations at Fort Pickering, about half of a dozen twelve pound shot were taken from the north-east and south-west corners of the old parapet facing the harbor. They were found buried about three feet beneath the turf half way from the top of the parapet. There is good reason to believe that these balls were thrown there by the British Man of War Nautilus, when she chased the Privateer Rattlesnake into Beverly harbor, Oct. 10, 1775. An account of this affair is given in an old newspaper, the "New England Chronicle or Essex Gazette," of Oct. 12, 1775, also in Stone's History of Beverly, page 64.

The Privateer was chased in from the Bay and ran ashore in Mackerel Cove near Beverly. The Man of War got aground on Nathaniel's Ledge, south-east of Woodbury's point and in this position bombarded the town of Beverly till the tide leaving her, she carcened so that she was unable to bring a single gun to bear. Thus she remained under constant fire from the Salem people on Hospital point and from Sharpshooters on the Beverly shore till dark, when she cut her cable and got off, having been considerably damaged. It is probable that as the Nautilus entered the harbor, she passed not far from Fort Pickering and fired a broadside at it.

The Fort has been repaired twice since then, once in 1798 and again in 1809.—but from the accounts lately given of these repairs and from the appearance of the place previous to the present alterations, it is inferred that a part of the old parapet where these balls were found has not been materially altered since the Revolution.

GEORGE D. WILDES followed with some remarks relating to the Forts and to the sailors and soldiers of the Revolution and of the War of 1812 furnished by Salem, Newburyport and other towns of the County. He made particular men-

tion of Capt. William Nichols of Newburyport, a noted privateersman in the war of 1812, and related some of his feats of bravery and skill, of his being a prisoner, his escape and his recapture. He then alluded to the *Collins House* in Danvers, (now the residence of F. Peabody, Jr. Esq.) as a place of historic interest, being the head-quarters of Gov. Gage, and also the encampment near by of a regiment of British troops, on the eve of the outbreak of the Revolution.

A. C. GOODELL in reply to some questions, spoke of the Forts in Salem and vicinity, the old Town House and other incidents of the period immediately preceding the revolution. He then offered the following resolution in behalf of a committee appointed at a previous meeting which was unanimously adopted.

Resolved, That the Essex Institute earnestly unites in the petition of any persons or corporation to the Secretary of War to give to the fortifications erecting or to be erected in Marblehead in this county, the name of Fort Glover, in memory of Gen. John Glover and to the works designed for the "Stage" in Gloucester in this county, the name of Fort Conant, in honor of Roger Conant the founder of the first plantation in Massachusetts Bay.

On motion of James Kimball,

Voted, That the Rev. G. D. Wildes be requested to prepare a memorial of Capt. Wm. Nichols of Newburyport to be read at a meeting of the Institute and for publication in the Historical Collections. Adjourned.

Monday, December 28, 1863.

Meeting this evening, A. C. Goodell Jr., in the chair.

Records of preceding meeting read, and Donations were announced from the following :

To the Library—from George R. Curwen ; J. H. Hickcox of Albany N.Y. ; C. B. Richardson of New York ;
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nadian Institute ; Montreal Society of Natural History ; Editors of Round Table, New York ; S. H. Scudder of Boston ; R. H. Wheatland.

To the Cabinets—from Joseph A. Goldthwaite ; C. H. Higbee ; E. Q. Putnam.

Letters were read from Pennsylvania Historical Society ; Long Island Historical Society ; J. A. Goldthwaite ; N. E. Atwood of Provincetown ; W. B. Rogers of Boston.

F. W. Putnam announced the decease of the Cabinet Keeper, R. H. Wheatland, with appropriate remarks. Messrs. J. A. Gillis and F. W. Putnam were requested to prepare a biographical notice to be presented at the annual meeting.

W. P. UPHAM announced the decease of the following members of recent occurrence—Charles M. Endicott, Gilbert G. Newhall, Thomas Trask, John B. Peabody. Messrs. G. D. Phippen and the Secretary were requested to prepare obituary notices for the annual meeting.

REV. GEORGE D. WILDES read a letter from B. Hale of Newburyport, respecting the materials for a memoir of Capt. William Nichols of Newburyport, recently deceased.

F. W. PUTNAM offered some remarks upon the habits of the Grisly Bear—suggested by a skull, a recent contribution to the Cabinets from the late Capt. Wm. O. Potter.

GEORGE A. WARD stated that measures were in progress to obtain possession of the frame of the old building on the land of David Nichols in the rear of Boston Street, and to place the same in rear of Plummer Hall.

George A. Ward was placed on the Committee of enquiry as to the authenticity of the tradition that the frame of the above mentioned building is that of the first meeting-house in Salem, in place of Charles M. Endicott, deceased. Adj.

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